

# TA-F333ESL/F770ES/F870ES

## SERVICE MANUAL



Photo: TA-F333ESL

*AEP Model*  
*UK Model*  
 TA-F770ES  
*E Model*  
 TA-F333ESL  
*Germany Model*  
 TA-F770ES/F870ES

### SPECIFICATIONS

#### Amplifier Section

| Items   | Condition                 |   | Data  |   |
|---|---------------------------|---|---|---|
|   |                           |   | TA-F870ES   | TA-F333ESL/TA-F770ES                                  |
| Continuous RMS power output (both channels driven simultaneously) | 4 ohms, 20 Hz – 20 kHz    | Countries other than North European Countries | 170 W + 170 W<br>(THD 0.02%)<br>(DIN: 200 W + 200 W)  | 140 W + 140 W<br>(THD 0.02%)<br>(DIN: 180 W + 180 W)  |
|   | 6 ohms, 20 Hz – 20 kHz    | North European countries                      | —   | 110 W + 110 W<br>(THD 0.018%)<br>(DIN: 130 W + 130 W) |
|   | 8 ohms, 20 Hz – 20 kHz    | Countries other than North European countries | 120 W + 120 W<br>(THD 0.004%)<br>(DIN: 135 W + 135 W) | 100 W + 100 W<br>(THD 0.015%)<br>(DIN: 120 W + 120 W) |
|   |                           | North European countries                      | —   | 90 W + 90 W<br>(THD 0.015%)<br>(DIN: 105 W + 105 W)   |
| Power band width (IHF)  | 8 ohms, THD 0.02%         |   | 10 Hz – 100 kHz at 45 W                               | 10 Hz – 100 kHz at 45 W                               |
| Dynamic headroom ('78 IHF)  | 4 ohms                    |   | 2 dB  | 2 dB  |
|   | 8 ohms                    |   | 1.2 dB  | 1.2 dB  |
| Total harmonic distortion   | 8 ohms, at 10 watt output |   | 0.003%  | 0.003%  |
| Intermodulation (IM) distortion<br>60 Hz: 7 kHz = 4 : 1           | 4 ohms, at rated output   |   | 0.008%  | 0.008%  |
|   | 6 ohms, at rated output   |   | 0.006%  | 0.006%  |
|   | 8 ohms, at rated output   |   | 0.004%  | 0.004%  |
| Damping factor  | 8 ohms, at 1 kHz          |   | 100   | 100   |
| Residual noise  | network A, 8 ohms         |   | less than 110 $\mu$ V                                 | less than 110 $\mu$ V                                 |

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INTEGRATED STEREO AMPLIFIER  
**SONY®**

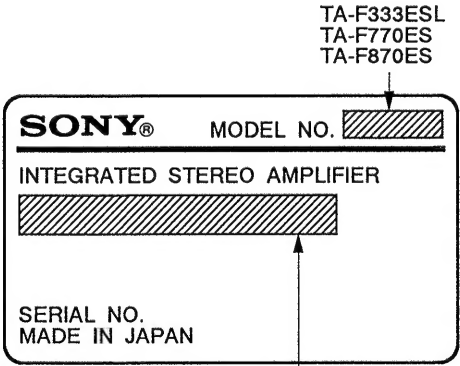
| Items                     | Condition   |    | Data  |  |
|---------------------------|---|----|---|--|
|                           |   |    | TA-F870ES   | TA-F333ESL/TA-F770ES   |
| Frequency response        | PHONO MM  |    | RIAA equalization curve<br>± 0.2 dB                                       | RIAA equalization curve<br>± 0.2 dB                              |
|                           | TUNER, CD, TAPE 1, 2, 3,<br>DIRECT IN               |    | 2 Hz – 200 kHz ± <sub>3</sub> dB  | 2 Hz – 200 kHz ± <sub>3</sub> dB                                 |
| Input sensitivity         | PHONO   | MC | 0.17 mV (1 kohm)<br>0.17 mV (100 ohms)                                    | 0.17 mV (1 kohm)<br>0.17 mV (100 ohms)                           |
|                           |   | MM | 2.5 mV, 50 kohms  | 2.5 mV, 50 kohms   |
|                           | TUNER, CD, DIRECT IN,<br>TAPE 1, 2, 3, ADAPTOR, AUX |    | 150 mV, 20 kohms  | 150 mV, 20 kohms   |
| S/N (network)<br>(78 IHF) | PHONO   | MC | 79 (0.5 mV)   | 77 (0.17 mV)   |
|                           |   | MM | 93 (5 mV)   | 93 (2.5 mV)  |
|                           | TUNER, CD, DIRECT IN,<br>TAPE 1, 2, 3, ADAPTOR, AUX |    | 105 (150 mV)  | 105 (150 mV)   |
| Output voltage impedance  | REC OUT 1, 2, 3<br>ADAPTOR                          |    | 150mV, 1kohm  | 150mV, 1kohm   |
|                           | HEADPHONES  |    | 25 miliwatts (at 8 ohms)<br>Accepts low and high<br>impedance headphones. | 25 miliwatts (at 8 ohms)<br>Accepts low impedance<br>headphones. |
| Tone controls             | BASS, at 100 Hz                                     |    | ± 7 dB  | ± 7 dB   |
|                           | TREBLE, at 10 kHz                                   |    | ± 6 dB  | ± 6 dB   |
| Subsonic filter           | —   |    | 6 DB/octave attenuation<br>below 15 Hz                                    | 6 DB/octave attenuation<br>below 15 Hz                           |
| Muting                    | —   |    | — 20 dB   | — 20 dB  |

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MODEL IDENTIFICATION  
— Specification Labels —



AEP, Germany model: AC: 220 V ~50/60 Hz  
UK model: AC: 240 V ~50/60 Hz  
E model: AC: 120/220/240 V ~50/60 Hz

**SAFETY-RELATED COMPONENT WARNING!!**  
COMPONENTS IDENTIFIED BY MARK  OR DOTTED LINE WITH MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

## General

**System** Preamplifier section: Low-noise high gain NFB type equalizer amplifier, passive type direct tone control  
Power amplifier section: Pure-complementary SEPP power amplifier, MOS FET power transistor for final stage.

**Power requirements**  
UK model: 240 v AC, 50 Hz  
AEP, Germany model: 220 – 230 V AC, 50/60 Hz  
E model: 120 V, 220 V, or 240 V AC, adjustable, 50/60 Hz

## Power consumption

|                      | TA-F870ES | TA-F333ESL<br>TA-F770ES |
|----------------------|-----------|-------------------------|
| UK model             | —         | 760 W                   |
| Germany model        | 390 W     | 330W                    |
| North European model | —         | 260 W                   |
| European model       | —         | 330 W                   |
| E model              | —         | 330 W                   |

## AC outlet

|               | TA-F870ES             | TA-F770ES              |
|---------------|-----------------------|------------------------|
| UK model      | —                     | 1 switched, 100 W max. |
| Germany model | 1 switched 100 W max. | 1 switched 100 W max.  |
| AEP model     | —                     | 1 switched 100 W max.  |

## Dimensions

TA-F333ESL/TA-F770ES (AEP, E, Germany model):  
Approx. 470 × 165 × 435 mm (w/h/d)  
(18½ × 6½ × 17⅞ inches)

TA-F770ES (UK model):  
Approx. 430 × 165 × 435 mm (w/h/d)  
(17 × 6½ × 17⅞ inches)

TA-F870ES (Germany model):  
Approx. 470 × 165 × 435 mm (w/h/d)  
(18½ × 6½ × 17⅞ inches)

## Weight

TA-F333ESL/TA-F770ES (AEP, E, Germany model):  
Approx. 21.3 kg (47 lbs) net

TA-F870ES (U. K. model):  
Approx. 20 kg (44 lbs 2oz) net

TA-F870ES (Germany model)  
Approx. 24 kg (53 lbs) net

## Accessories supplied

Remote commander RM-S703 (1)  
Sony batteries SUM-3 (NS)  
Screws (8) (except for U. K. model)

Design and specifications subject to change without notice.

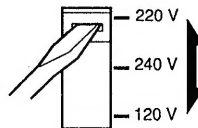
## Note

This appliance conforms with EEC directive 87/308/EEC regarding interference suppression.

# Operating Voltage

Before connecting the unit to an AC outlet, be sure that the operating voltage of your unit is identical with that of your local power supply.

|                    |   |
|--------------------|---|
| UK model           | Operates on 240 V AC, 50 Hz.  |
| AEP, Germany model | Operates on 220 – 230 V AC, 50/60 Hz.   |
| E model            | Operates on either 120 V, 220 V, 240 V AC, adjustable, 50/60 Hz. The voltage selector is located on the rear panel. If you need to change the selector, disconnect the AC power cord and set the selector to the proper voltage of your local power supply. |



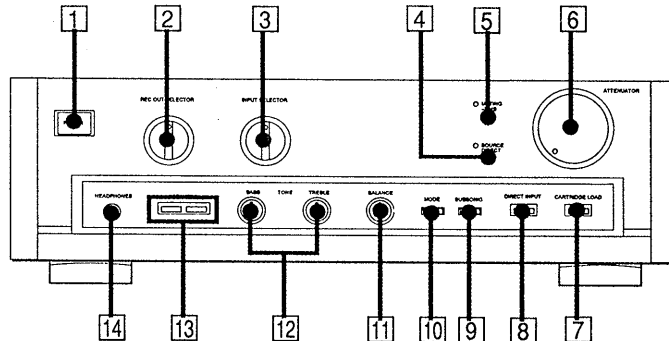
## SECTION 1

### GENERAL

This section is extracted from instruction manual.

## Function of Controls

### Front panel



#### 1 POWER switch and indicator

After the power is turned on, the standby indicator lights in red as the built-in muting circuit activates. When the amplifier stays in a stable operating condition, the indicator lights in green.

The indicator lights in red if the unit detects shorting of circuit of the speaker outputs or in case of short-circuit of the inputs of DC components. In such a case, disconnect the power source and check the connected components and speaker systems.

#### 2 REC OUT SELECTOR

Selects the program source sent to the REC OUT jacks for recording.

#### 3 INPUT SELECTOR

Selects the desired program source for listening.

#### 4 SOURCE DIRECT button and indicator

Depress the button. The red indicator lights and the circuits of the TONE control, SUBSONIC filter button, BALANCE control and MODE selector are disengaged without regard to the setting of the switches.

#### 5 MUTING button and indicator

Depress the button to reduce the sound level by 20 dB. (Output voltage becomes 1/10.)

Generally, keep the button released (OFF).

#### 6 ATTENUATOR

Adjusts the sound level. To increase the sound level, turn the control clockwise. To decrease the level, turn the control counterclockwise.

#### Note

Turn down the sound level before switching on the unit. This prevents damage to speakers.

#### 7 CARTRIDGE LOAD selector

Set the selector according to your cartridge.

MM: For moving-magnet type cartridge

MC: For moving-coil type cartridge

40  $\Omega$ : For a cartridge with an impedance of 40 ohms or more.

3  $\Omega$ : For a cartridge with an impedance of 3 ohms to 40 ohms.

#### 8 DIRECT INPUT selector

Set to SOURCE to select program source with the INPUT SELECTOR.

To listen to a program source processed through the equipment, such as graphic equalizer, connected to the ADAPTOR jacks, set it to ADAPTOR

To listen to a program source connected to DIRECT IN jacks, set it to DIRECT.

#### 9 SUBSONIC filter button

Depress the button to reduce noise components of less than 15 Hz, which cause modulation noise.

#### 10 MODE selector

STEREO: For listening to a stereo program.

MONO: For listening to a monaural program.

#### 11 BALANCE control

Adjusts the sound level of left and right speakers.

#### 12 BASS and TREBLE TONE controls

Adjust the tone quality.

To increase bass or treble sound, turn the control clockwise. To decrease them, turn the control counterclockwise.

#### 13 SPEAKERS buttons (TA-F222ESA/TA-F570ES/TA-F670ES)

Select speaker system A or B, or both.

To drive speaker system A: Depress A button.

To drive speaker system B: Depress B button.

To drive speaker system A and B: Depress A and B.

For headphones listening only: Set both to OFF ( $\square$ ).

#### TA-F670ES only

To use power amplifier or active speaker system connected to the PRE OUT jacks, depress B/PRE OUT.

#### SPEAKERS selector

Select speaker system A or B, or both.

To drive speaker system A: Set the selector to A.

To drive speaker system B: Set the selector to B.

To drive speaker system A and B: Set the selector A+B.

For headphones listening only: Set the selector to OFF.

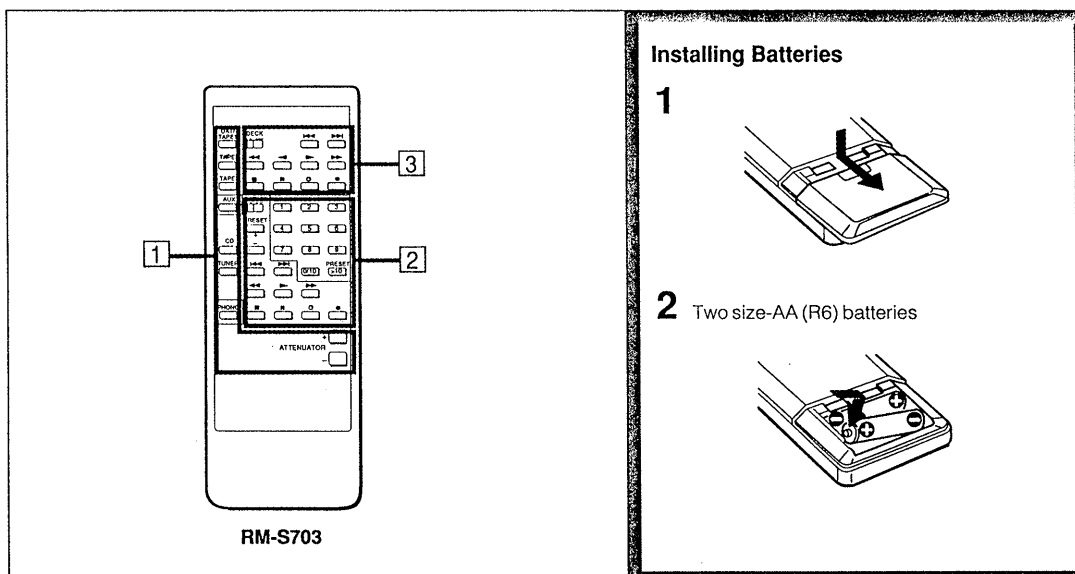
To use power amplifier or active speaker system connected to the PRE OUT jacks, set the selector to B/ PRE OUT.

#### 14 HEADPHONES jack

Accepts the stereo phone plug of headphones.

#### 15 Remote control sensor

## Remote Commander RM-S703



### Function of Controls

#### 1 Amplifier control section

Input selectors: Select an input source of the amplifier.  
ATTENUATOR +/- buttons: Control the volume of amplifier.

#### 2 Tuner/DAT deck/CD player control section

DAT/CD selector: Selects DAT deck or CD player.

◀◀/▶▶: Locates a desired selection.

◀◀/▶▶: Manual search

▶: Play

■: Stop

||: Pause

○: Record muting

●: Recording

PRESET +/- buttons: Selects a preset channel of the tuner. (only for the tuner)

Program number (1 to 0/10, and >10) and ENTER buttons: Select a preset station or track.

#### 3 Tape deck control section

DECK A/B selector: Selects deck A or B.

◀◀/▶▶: Locates a desired selection.

▶: Play

◀◀/▶▶: Fast winding

■: Stop

||: Pause

○: Record muting

●: Recording

### Notes on Batteries

#### Battery life

About half a year of normal operation can be expected when using the Sony SUM-3 (NS) batteries. When the batteries are exhausted, the remote commander can no longer operate the unit. If this happens, replace both batteries with new ones.

#### To avoid battery leakage

When the commander is not used for a long time, remove the batteries to avoid damage caused by battery leakage and corrosion.

#### To avoid malfunction of the remote commander

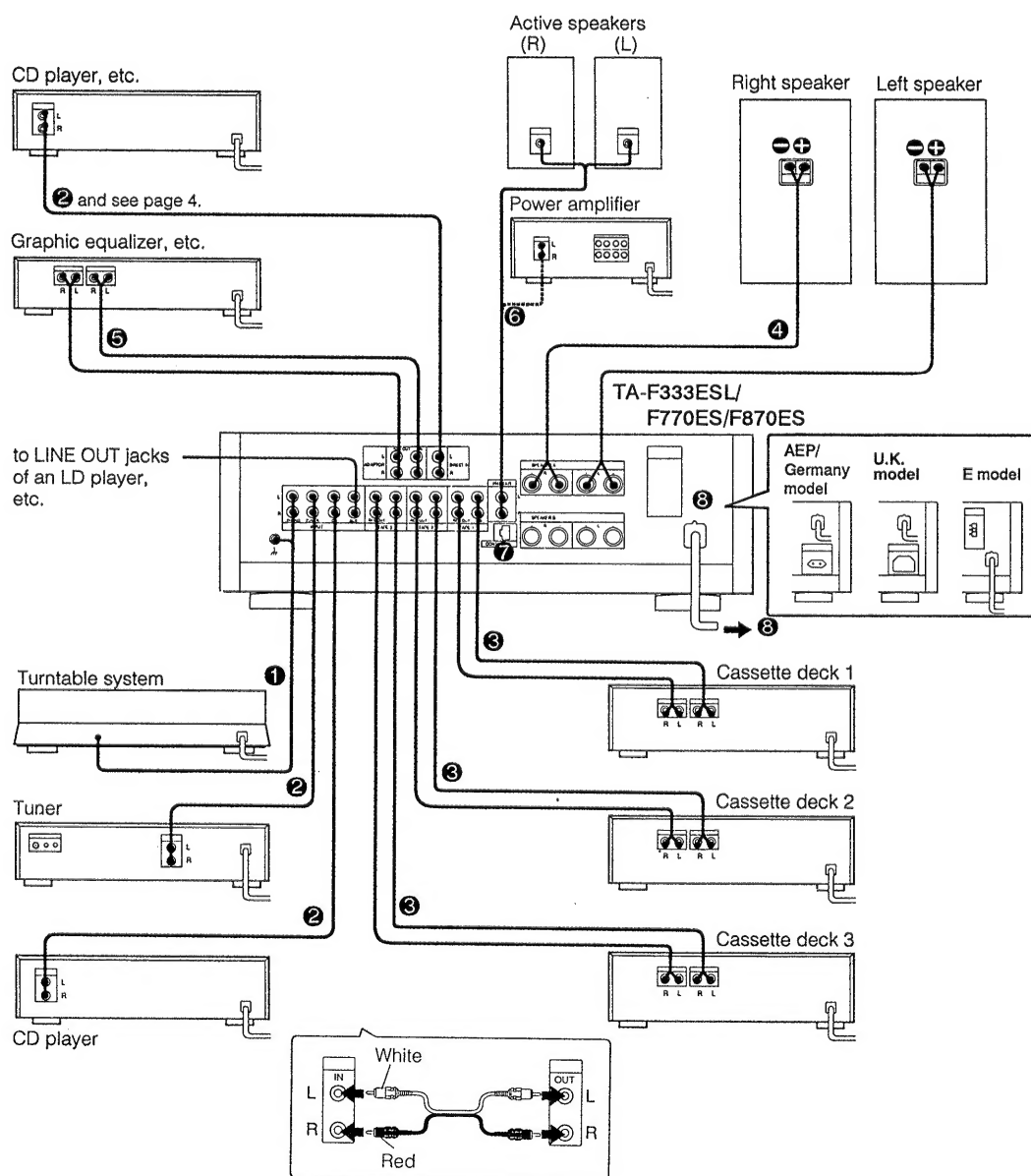
Avoid keeping the commander under extremely hot or humid locations.

## System Connections

### Connection Notes

- Connect the AC power cord last of all. Make sure that the power is off when making connections.
- Cord plugs and jacks are color coded. Red plugs and jacks are for right channel (R) and white ones for the left channel (L).
- Insert the cable connectors fully into the jacks. A loose connection may cause hum and noise.
- Connect the + and - cords of the speaker systems correctly to the + and - terminals of the amplifier respectively.

The numbers described ● correspond to the individual connecting diagram.



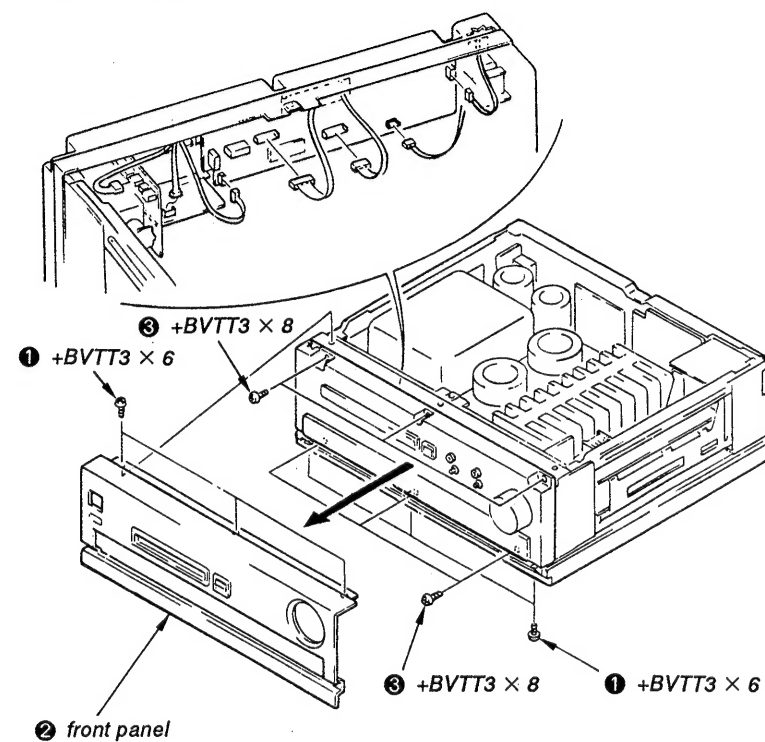
### To enjoy pure sound

Connect a CD player or a tuner to the DIRECT IN jacks. DIRECT IN circuitry bypasses the INPUT SELECTOR and REC OUT SELECTOR so the signal is sent directly to the amplifier. Note that the program source input through DIRECT IN jacks cannot be processed through an adaptor nor be output through REC OUT jacks.

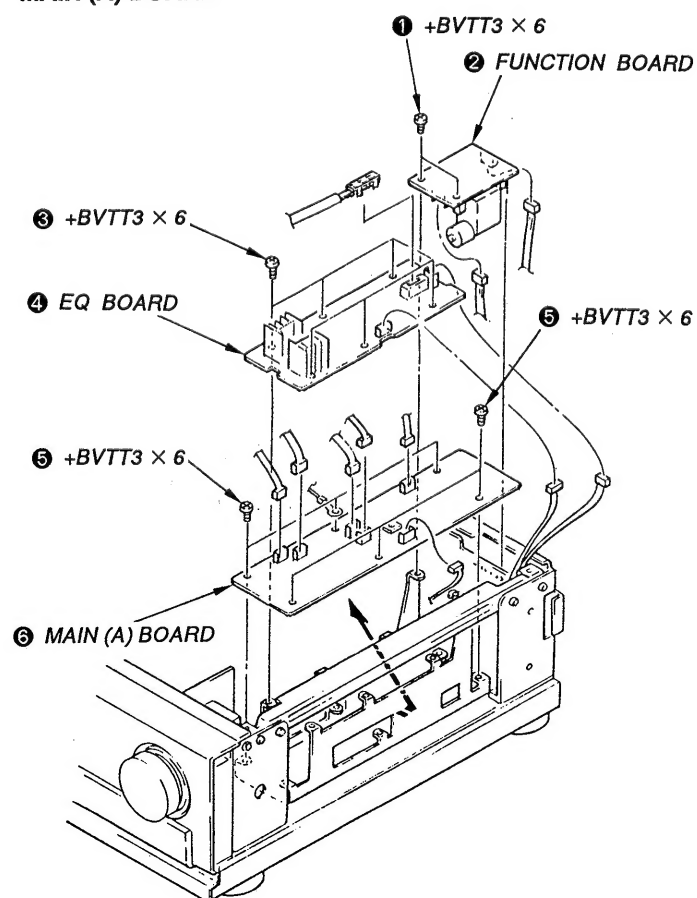
## SECTION 2 DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

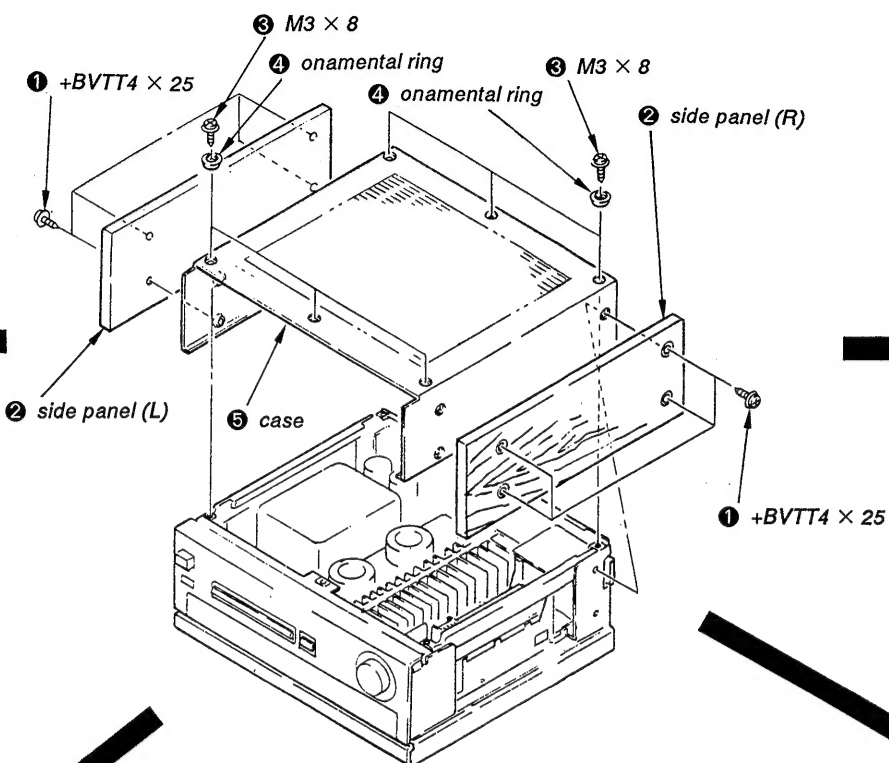
### FRONT PANEL



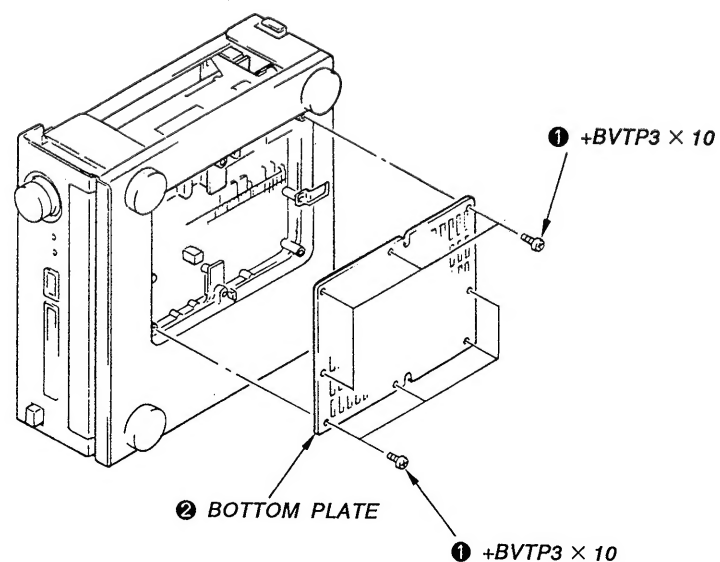
### MAIN (A) BOARD



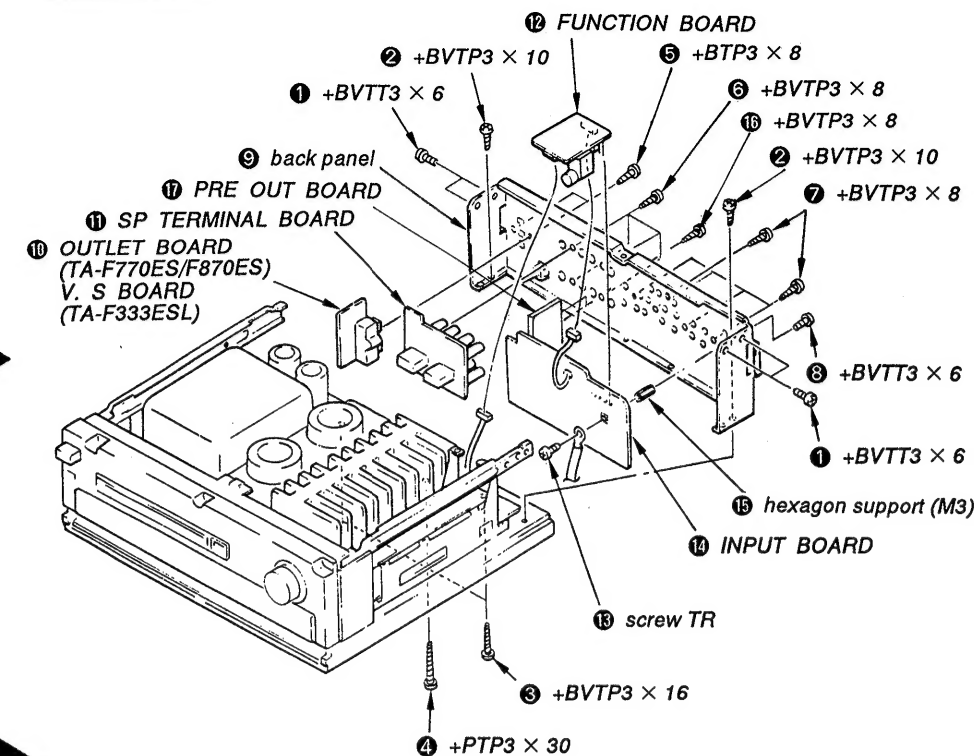
### CASE



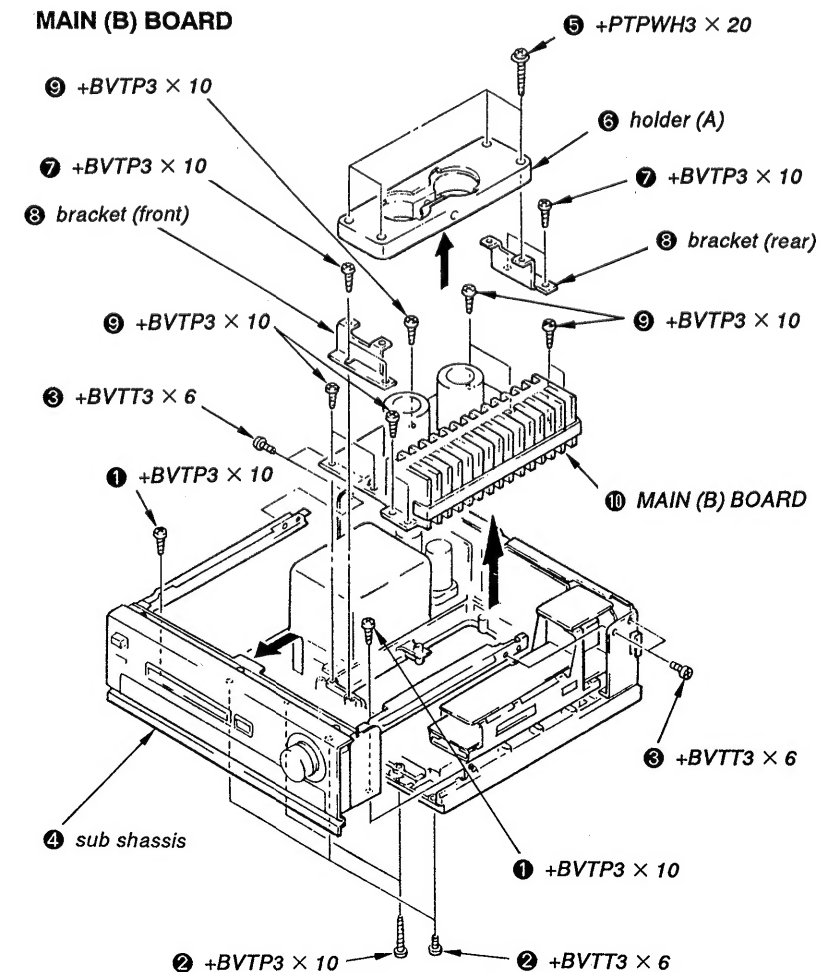
### MAIN (B) BOARD CHECKING METHOD



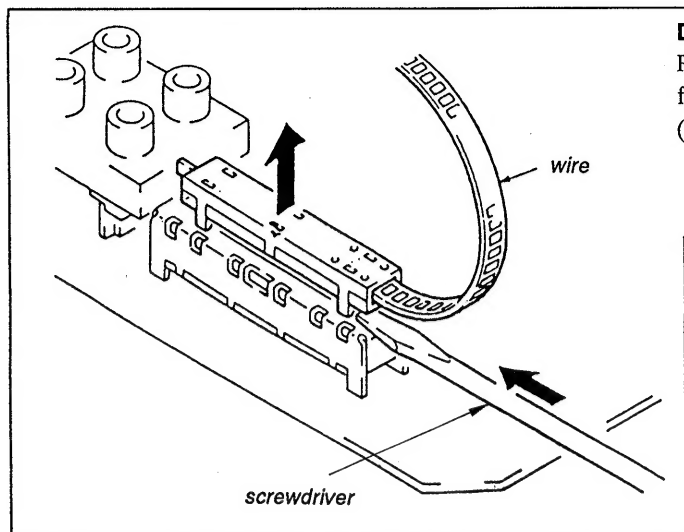
### BACK PANEL



### MAIN (B) BOARD



## SECTION 3 SWITCH DISASSEMBLY AND ASSEMBLY



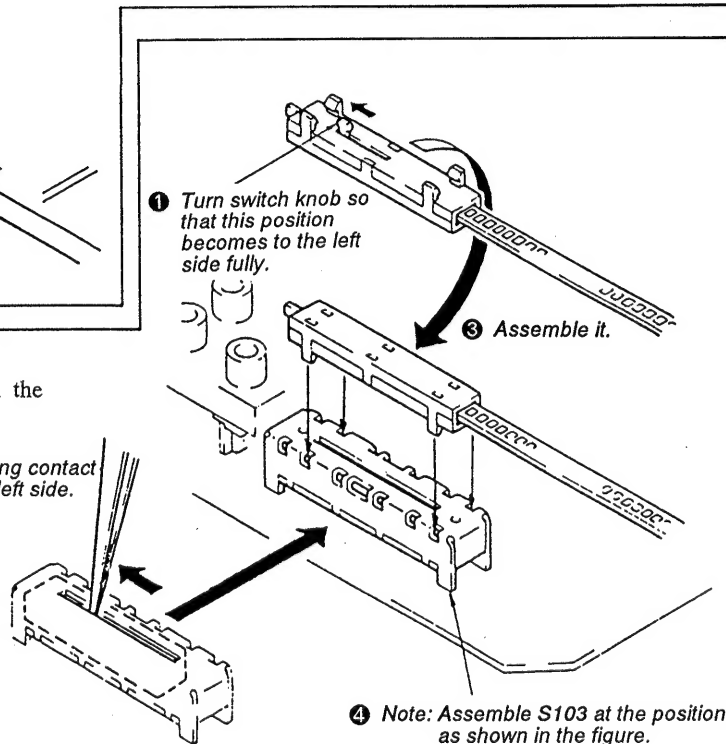
### DISASSEMBLY

Remove by inserting screwdriver as shown in the left figure.

(Don't pull the wire. It causes malfunction.)

### ASSEMBLY

Assemble in the numerical order given as shown in the right figure.



## SECTION 4 ELECTRICAL ADJUSTMENTS

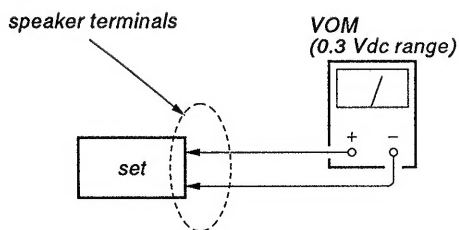
**Note:** adjustment should be performed 5 minutes later, after the power switch is on.

### Offset Adjustment

#### Setting:

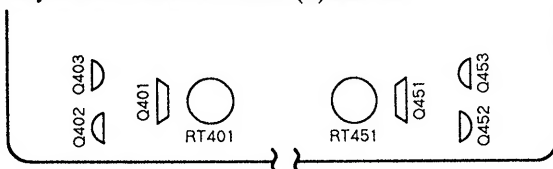
OPERATION switch: STEREO  
Input signal: No signal input

#### Procedure:



Adjust RT401 (L-CH) and RT-451 (R-CH) for 0 V reading on the VOM.

#### Adjustment Location: MAIN (A) BOARD



### Bias Current Adjustment

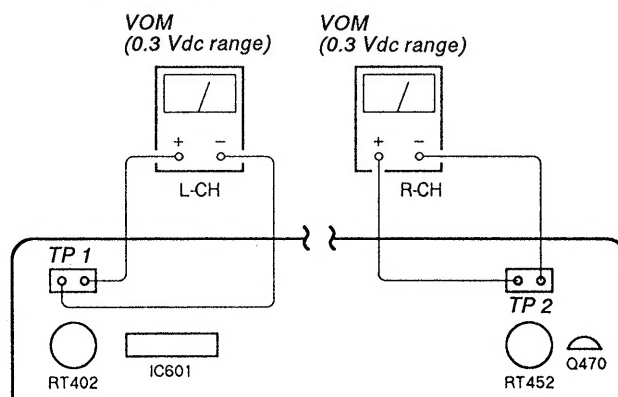
#### Setting:

OPERATION switch: STEREO  
Input signal: No signal input

#### Procedure:

Adjust RT402 (L-CH) and RT-452 (R-CH) so that VOM reading of TP-1 (L-CH), TP-2 (R-CH) become 35 mv.

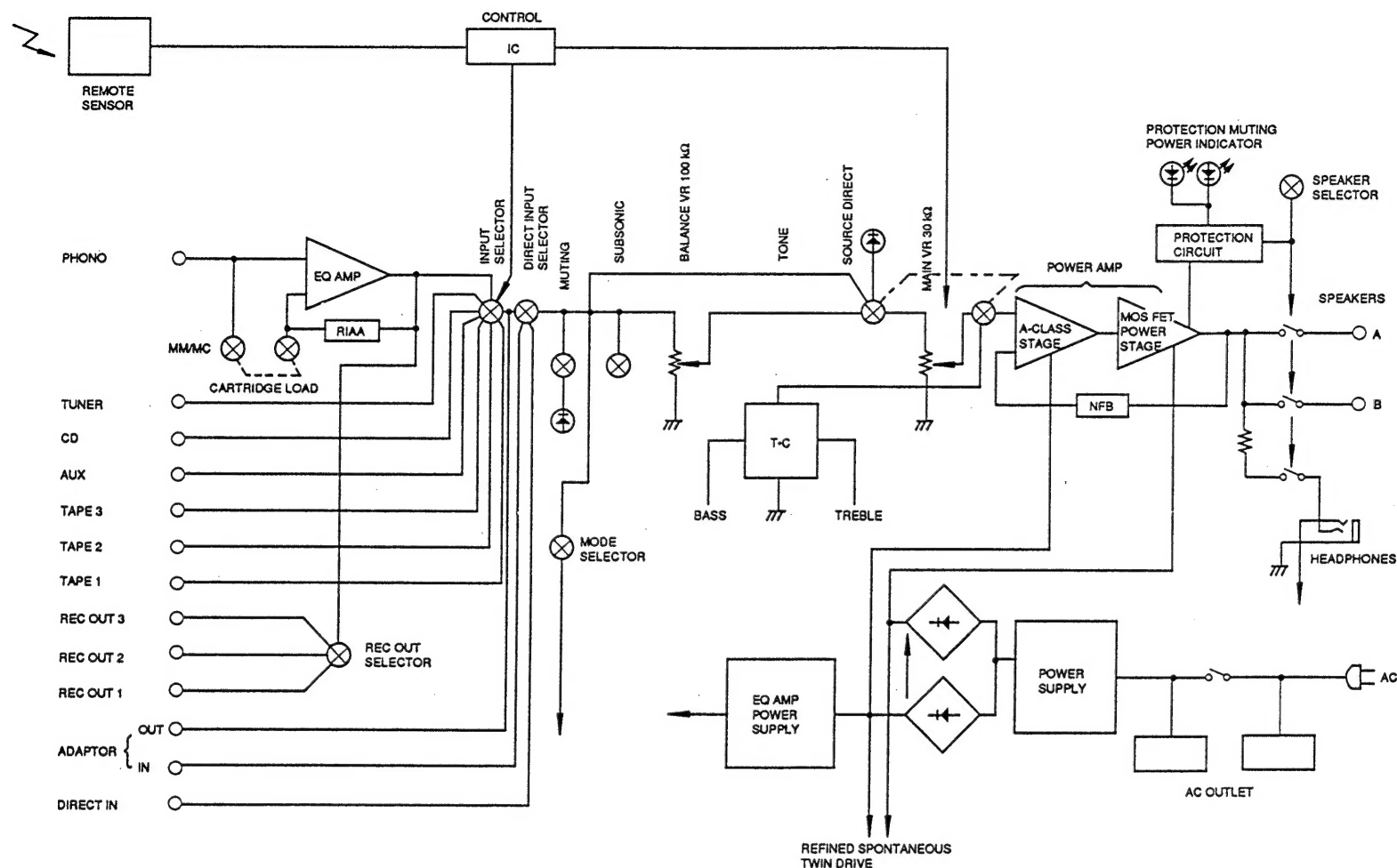
#### Adjustment Location: MAIN (B) BOARD



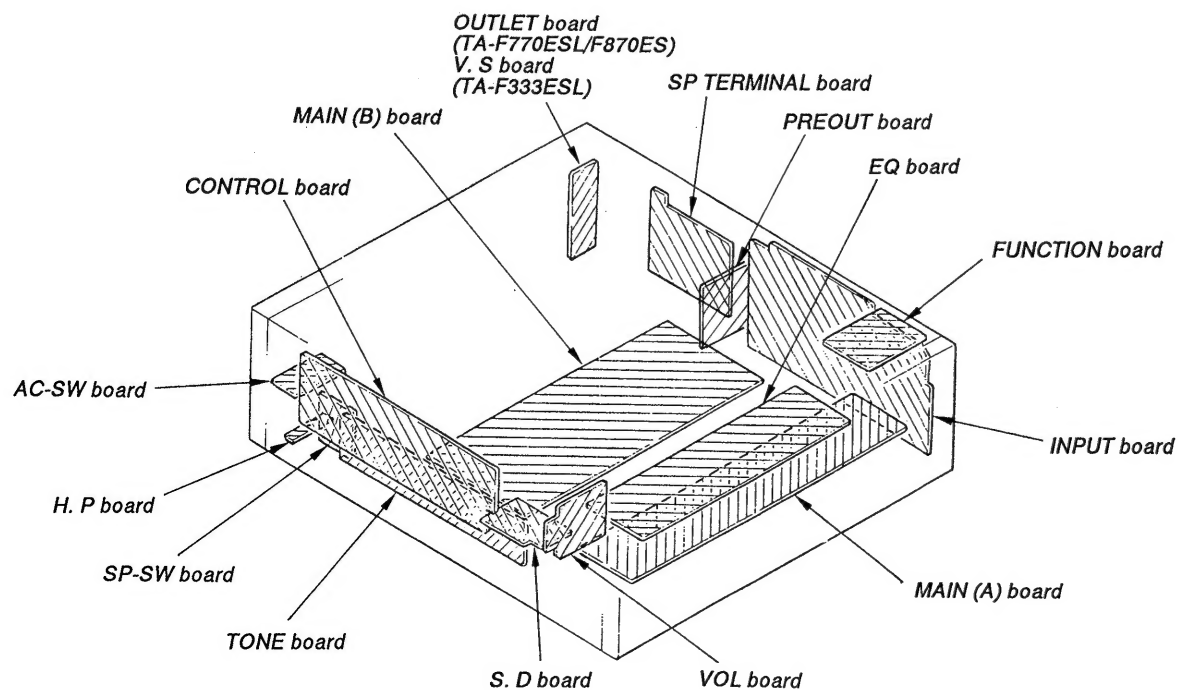


## SECTION 5 DIAGRAMS

### 5-1. BLOCK DIAGRAM



### 5-2. CIRCUIT BOARDS LOCATION



#### Note on Printed Wiring Board:

##### Note:

- — : parts extracted from the component side.

#### Note on Schematic Diagram:

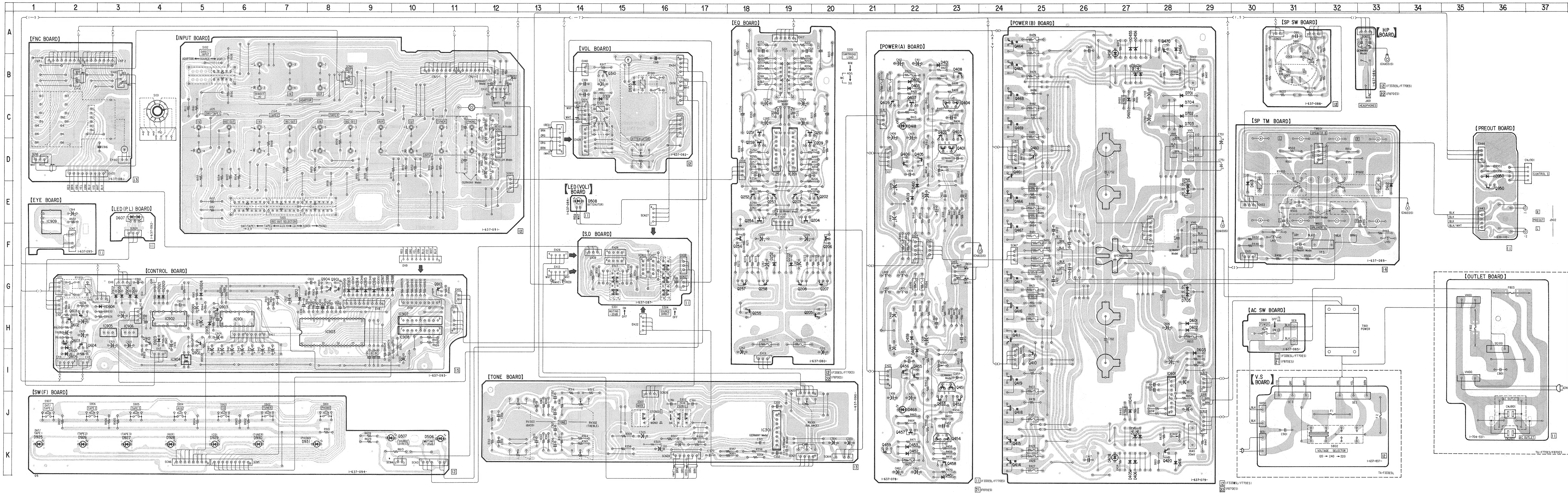
##### Note:

- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF}$ :  $\mu\text{F}$  50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $\frac{1}{4}$  W or less unless otherwise specified.
- % : indicates tolerance.
- Components for right channel have same values as for left channel.
- : nonflammable resistor.
- : fusible resistor.

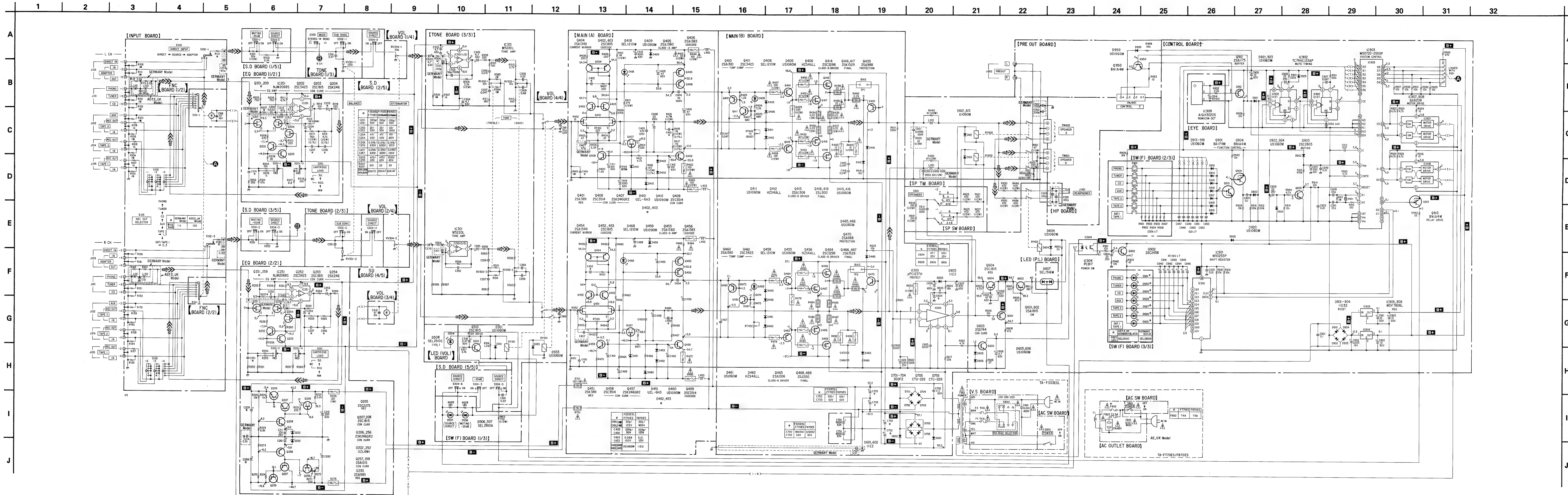
Note: The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

- $B+$  : B + Line.
- $B-$  : B - Line.
- : adjustment for repair.
- Voltages are taken with a VOM (10 M $\Omega$ /V). Voltage variations may be noted due to normal production tolerances.
- Signal path.
- : PHONO







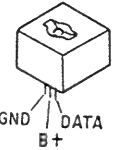


● Semiconductor Location

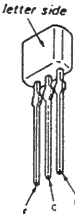
| Ref. No. | Location | Ref. No. | Location |
|----------|----------|----------|----------|
| D202     | F-19     | IC601    | I-28     |
| D252     | F-19     | IC901    | H-6      |
| D301     | C-14     | IC902    | H-4      |
| D401     | B-23     | IC903    | H-8      |
| D402     | B-22     | IC904    | I-5      |
| D403     | B-22     | IC905    | H-3      |
| D405     | K-27     | IC906    | H-3      |
| D406     | K-27     | IC907    | H-10     |
| D408     | K-27     | IC908    | H-10     |
| D409     | E-22     | IC909    | E-1      |
| D410     | E-22     |          |          |
| D411     | K-27     | Q201     | C-19     |
| D412     | K-27     | Q202     | E-20     |
| D415     | J-27     | Q203     | E-19     |
| D416     | K-28     | Q204     | E-19     |
| D418     | C-22     | Q205     | H-20     |
| D451     | K-23     | Q206     | F-20     |
| D452     | K-22     | Q207     | G-20     |
| D453     | K-22     | Q208     | G-19     |
| D455     | A-27     | Q209     | D-19     |
| D456     | A-27     | Q251     | C-18     |
| D458     | A-27     | Q252     | E-18     |
| D459     | H-22     | Q253     | E-19     |
| D460     | H-22     | Q254     | E-18     |
| D461     | B-27     | Q255     | H-18     |
| D462     | B-27     | Q256     | F-18     |
| D465     | C-27     | Q257     | G-18     |
| D466     | A-28     | Q258     | G-18     |
| D468     | J-22     | Q259     | D-18     |
| D506     | K-11     | Q310     | B-15     |
| D507     | K-10     | Q401     | D-23     |
| D508     | E-14     | Q402     | C-23     |
| D601     | H-28     | Q403     | C-23     |
| D602     | H-28     | Q404     | C-23     |
| D603     | I-29     | Q405     | D-22     |
| D604     | G-3      | Q406     | D-22     |
| D605     | H-2      | Q407     | C-22     |
| D606     | I-2      | Q408     | B-23     |
| D607     | E-3      | Q409     | C-21     |
| D612     | E-33     | Q410     | I-25     |
| D613     | E-30     | Q411     | H-24     |
| D701     | C-28     | Q414     | K-24     |
| D702     | C-28     | Q415     | K-24     |
| D703     | C-28     | Q416     | H-24     |
| D704     | C-28     | Q417     | G-24     |
| D705     | G-28     | Q418     | J-24     |
| D755     | E-28     | Q419     | I-24     |
| D901     | G-3      | Q420     | K-28     |
| D902     | G-3      | Q451     | I-23     |
| D903     | G-3      | Q452     | J-23     |
| D904     | G-3      | Q453     | J-23     |
| D905     | H-5      | Q454     | K-23     |
| D913     | G-8      | Q455     | I-22     |
| D914     | G-9      | Q456     | I-22     |
| D915     | G-9      | Q457     | J-22     |
| D916     | G-9      | Q458     | K-23     |
| D917     | G-9      | Q459     | K-21     |
| D918     | G-10     | Q460     | D-25     |
| D919     | G-9      | Q461     | D-24     |
| D920     | G-4      | Q464     | A-24     |
| D921     | G-4      | Q465     | B-24     |
| D922     | G-7      | Q466     | E-24     |
| D923     | H-4      | Q467     | F-24     |
| D924     | G-5      | Q468     | C-24     |
| D925     | K-1      | Q469     | C-24     |
| D926     | K-2      | Q470     | A-28     |
| D927     | K-3      | Q601     | H-2      |
| D928     | K-4      | Q602     | H-2      |
| D929     | K-5      | Q603     | H-2      |
| D930     | K-6      | Q604     | H-2      |
| D931     | K-8      | Q901     | G-8      |
| D933     | B-15     | Q902     | H-5      |
| D950     | D-36     | Q903     | H-5      |
|          |          | Q904     | G-8      |
| IC201    | D-19     | Q912     | H-4      |
| IC251    | D-19     | Q913     | G-11     |
| IC301    | J-19     | Q950     | E-36     |

● Semiconductor Lead Layouts

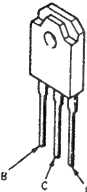
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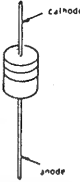
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**2SC2785-HFE**




**2SJ200-Y**  
**2SK1529-Y**



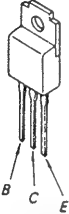
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**HZS6C3L**  
**1SS120**  
**11ES2**



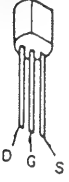
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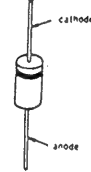
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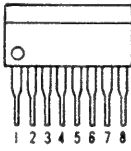
**2SK147-V**  
**2SK170-V**



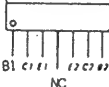
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**HZS6C3L**  
**1SS120**  
**11ES2**



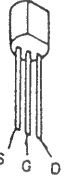
**μ PC1237HA**



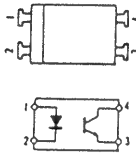
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**2SK246-GR2**




**PC817**



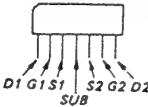
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**DTC114ES**  
**DTC124ES**  
**2SC2603-EF**



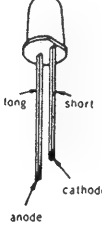
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**2SC3423-0**



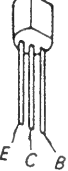
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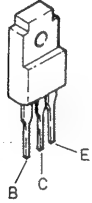
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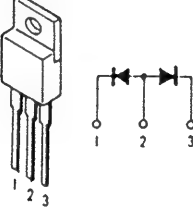
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**2SA1015-GR**  
**2SC1815-BL**




**2SD1763A**



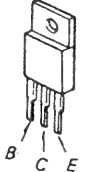
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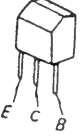
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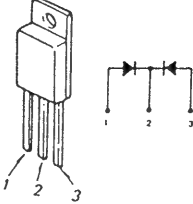
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**2SA1383**  
**2SC2275-P**  
**2SC3514**



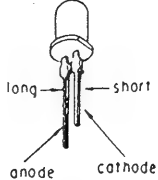
**2SD774-34**



**CTU-22S**



**SEL2510C-D**  
**SEL2810A**



## SECTION 6 EXPLODED VIEWS

### NOTE:

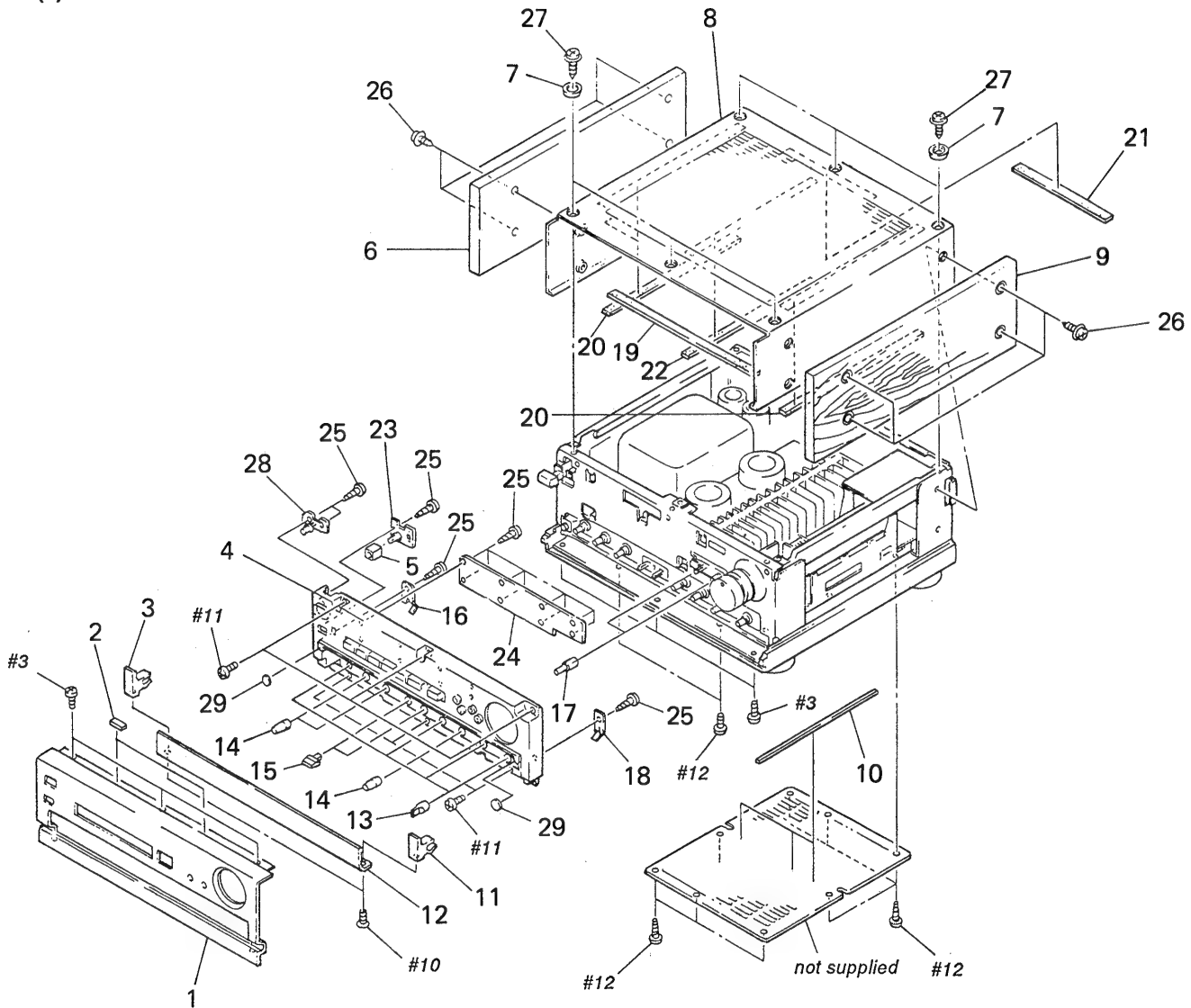
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts  
Example:  
KNOB, BALANCE (WHITE) ... (RED)  

↑  
Parts Color

↑  
Cabinet's Color
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

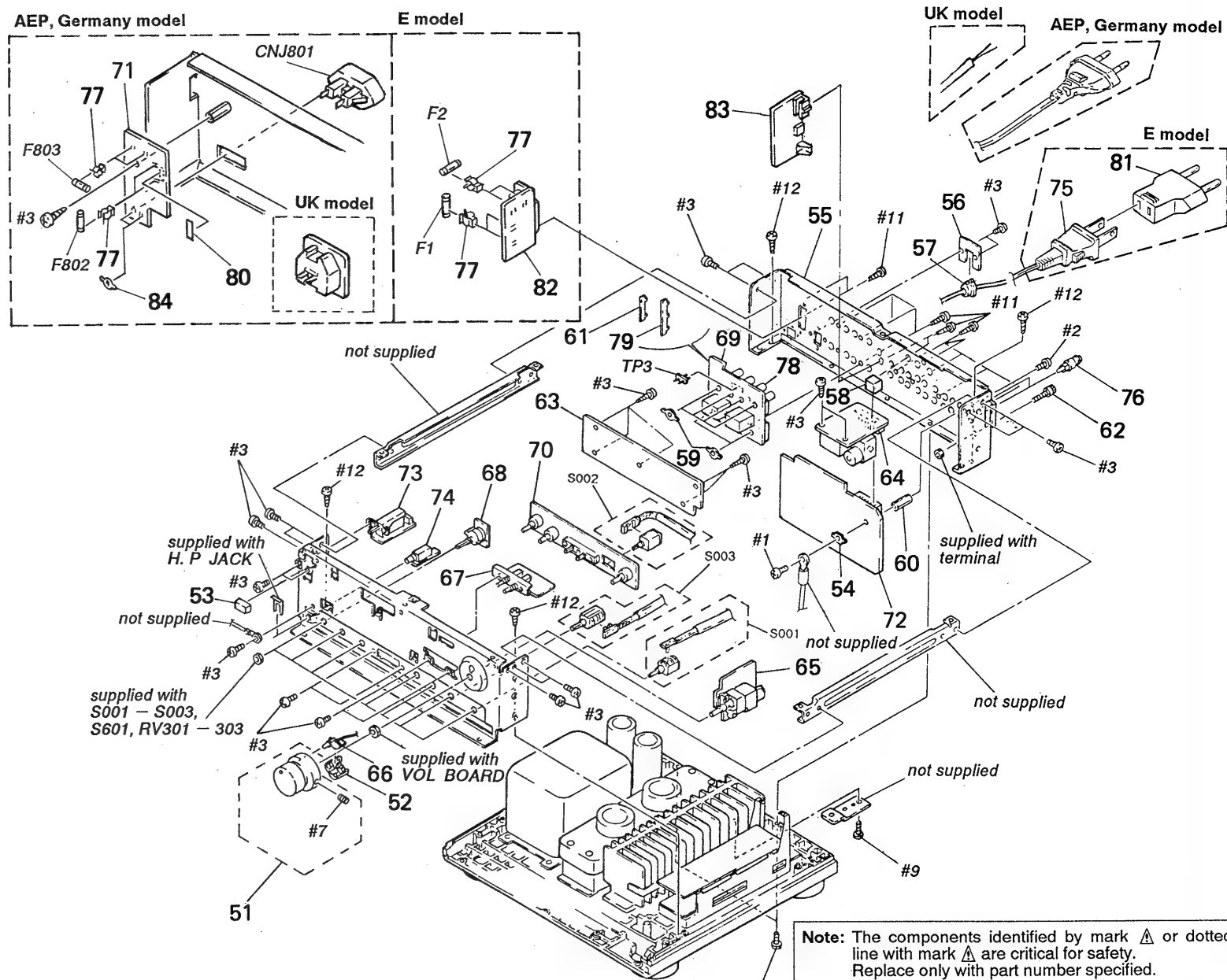
The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

### (1) CABINET SECTION



## (2) FRONT CHASSIS SECTION

| Ref. No. | Part No.       | Description   | Remark | Ref. No. | Part No.       | Description   | Remark |
|----------|----------------|---|--------|----------|----------------|---|--------|
| 1        | A-4323-753-A   | PANEL ASSY, FRONT (F333ESL)                                 |        | 11       | 4-942-226-11   | ARM (R) (F770ES(GOLD)/F870ES(GOLD))                       |        |
| 1        | A-4325-074-A   | PANEL ASSY, FRONT (F770ES(BLACK))                           |        | 12       | X-4941-192-1   | LID ASSY (E)  |        |
| 1        | A-4325-077-A   | PANEL ASSY, FRONT (F770ES(GOLD))                            |        | 12       | 4-946-474-01   | LID (F770ES(BLACK)/F870ES(BLACK))                         |        |
| 1        | A-4325-089-A   | PANEL ASSY, FRONT (F870ES(BLACK))                           |        | 12       | 4-946-474-11   | LID (F770ES(GOLD)/F870ES(GOLD))                           |        |
| 1        | A-4325-090-A   | PANEL ASSY, FRONT (F870ES(GOLD))                            |        | 13       | 4-942-241-01   | KNOB (SQUARE) (F333ESL/F770ES(BLACK)/F870ES(BLACK))       |        |
| 1        | A-4325-233-A   | PANEL ASSY, FRONT (F770ES)                                  |        | 13       | 4-942-241-11   | KNOB (SQUARE) (F770ES(GOLD)/F870ES(GOLD))                 |        |
| 2        | 9-911-840-XX   | CUSHION, RUBBER   |        | 14       | 4-942-240-01   | KNOB (ROUND) (F333ESL/F770ES(BLACK)/F870ES(BLACK))        |        |
| 3        | 4-942-225-01   | ARM (L) (F333ESL/F770ES(BLACK)/F870ES(BLACK))               |        | 14       | 4-942-240-11   | KNOB (ROUND) (F770ES(GOLD)/F870ES(GOLD))                  |        |
| 3        | 4-942-225-11   | ARM (L) (F770ES(GOLD)/F870ES(GOLD))                         |        | 15       | 4-942-228-01   | KNOB (3X13) (F333ESL/F770ES(BLACK)/F870ES(BLACK))         |        |
| 4        | X-4941-153-1   | PANEL (BASE) ASSY (F333ESL/F770ES(BLACK):AE2, UK)           |        | 15       | 4-942-228-11   | KNOB (3X13) (F770ES(GOLD)/F870ES(GOLD))                   |        |
| 4        | X-4941-820-1   | PANEL ASSY, BASE (F770ES(BLACK):AE1, Germany/F870ES(BLACK)) |        | 16       | * 4-942-233-01 | SPRING (L), PLATE   |        |
| 4        | X-4941-821-1   | PANEL ASSY, BASE (F770ES(GOLD)/F870ES(GOLD))                |        | 17       | 4-931-641-01   | BUTTON (D1A. 4) (F333ESL/F770ES(BLACK)/F870ES(BLACK))     |        |
| 5        | 4-942-566-01   | COVER, LED  |        | 17       | 4-931-641-11   | BUTTON (D1A. 4) (F770ES(GOLD)/F870ES(GOLD))               |        |
| 6        | X-4885-922-1   | PANEL (L) ASSY, SIDE (F770ES(BLACK):Germany/F870ES(BLACK))  |        | 18       | * 4-942-234-01 | SPRING (R), PLATE   |        |
| 6        | X-4941-857-1   | PANEL (L) ASSY, SIDE (F333ESL/F770ES(BLACK):AEP)            |        | 19       | * 4-916-782-71 | DAMPER (F333ESL/F770ES)                                   |        |
| 6        | X-4941-889-1   | PANEL (L) ASSY, SIDE (F770ES(GOLD)/F870ES(GOLD))            |        | 19       | * 4-929-218-11 | DAMPER (F870ES)   |        |
| 7        | 4-923-474-01   | RING, ORNAMENTAL (F333ESL/F770ES(BLACK)/F870ES(BLACK))      |        | 20       | * 4-929-217-01 | CUSHION (F870ES)  |        |
| 7        | 4-928-025-21   | ESCUTCHEON (TOP PLATE) (F770ES(GOLD)/F870ES(GOLD))          |        | 21       | * 4-916-761-01 | SHEET, DAMPER (F870ES)                                    |        |
| 8        | * 4-931-944-31 | CASE (F333ESL/F770ES(BLACK)/F870ES(BLACK))                  |        | 22       | 4-916-782-21   | SHEET (A) (F870ES)  |        |
| 8        | * 4-931-944-51 | CASE (F770ES(GOLD)/F870ES(GOLD))                            |        | 23       | * 1-637-092-11 | LED (P.L.) BOARD  |        |
| 9        | X-4885-823-1   | PANEL (R) ASSY, SIDE (F770ES(GOLD)/F870ES(GOLD))            |        | 24       | * 1-637-094-12 | SW (F) BOARD  |        |
| 9        | X-4941-890-1   | PANEL (R) ASSY, SIDE (F770ES(BLACK):Germany/F870ES(BLACK))  |        | 25       | 4-928-635-01   | SCREW, +BV (2.6X8) TAPPING                                |        |
| 9        | X-4941-958-1   | PANEL (R) ASSY, SIDE (F333ESL/F770ES(BLACK):AEP)            |        | 26       | 4-847-802-00   | SCREW (UK)  |        |
| 10       | 4-916-782-11   | SHEET   |        | 26       | 4-885-979-11   | SCREW (4X25) (AEP, E, Germany)                            |        |
| 11       | 4-942-226-01   | ARM (R) (F333ESL/F770ES(BLACK)/F870ES(BLACK))               |        | 27       | 3-704-366-01   | SCREW (CASE) (M3X8) (F333ESL/F770ES(BLACK)/F870ES(BLACK)) |        |
|          |                |   |        | 27       | 3-704-366-11   | SCREW (CASE) (M3X8) (F770ES(GOLD)/F870ES(GOLD))           |        |
|          |                |   |        | 28       | * 1-637-095-11 | EYE BOARD   |        |
|          |                |   |        | 29       | 4-879-274-01   | SPACER  |        |



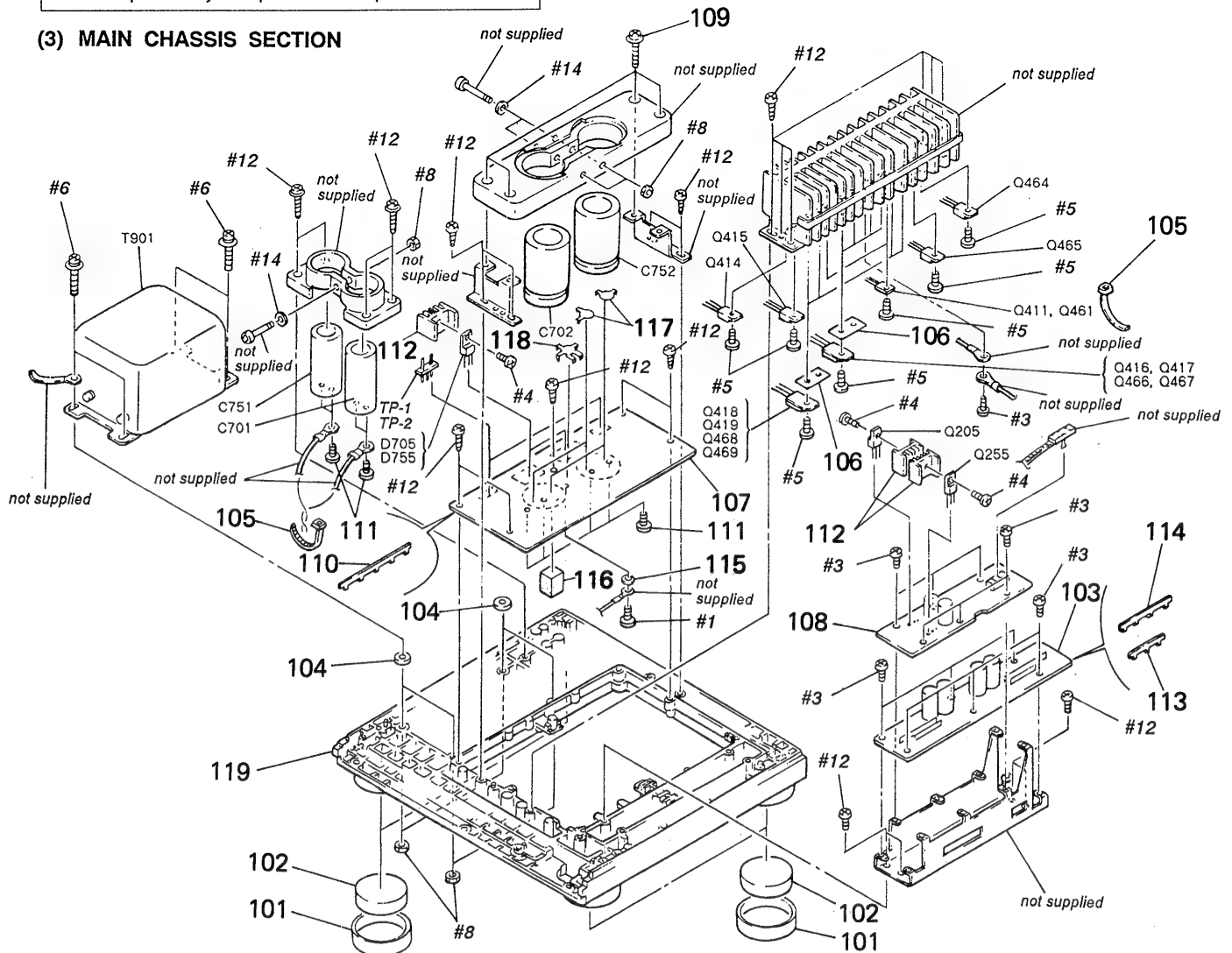
| Ref. No. | Part No.       | Description   | Remark | Ref. No. | Part No.       | Description                                      | Remark |
|----------|----------------|---|--------|----------|----------------|--|--------|
| 51       | X-4941-154-1   | KNOB (D1A. 55) ASSY (F333ESL/F770ES(BLACK)/F870ES(BLACK))   |        | 70       | * 1-637-090-12 | TONE BOARD                                       |        |
| 51       | X-4941-817-1   | KNOB (D1A. 55) ASSY (F770ES(GOLD)/F870ES(GOLD))             |        | 71       | * 1-640-345-11 | OUTLET BOARD (AEP, UK, Germany)                  |        |
| 52       | * 4-901-919-00 | HOUSE, LED LAMP   |        | 72       | * 1-637-091-12 | INPUT BOARD                                      |        |
| 53       | 4-942-032-01   | KNOB (POWER) (F333ESL/F770ES(BLACK)/F870ES(BLACK))          |        | 73       | * 1-637-085-11 | AC SW BOARD                                      |        |
| 53       | 4-942-032-11   | KNOB (POWER) (F770ES(GOLD)/F870ES(GOLD))                    |        | 74       | * 1-637-086-11 | H. P. BOARD                                      |        |
| 54       | * 4-835-639-00 | PLATE, GROUND   |        | 75       | Δ 1-559-272-21 | CORD, POWER (UK)                                 |        |
| 55       | * 4-945-371-01 | PANEL, BACK (F770ES(BLACK):Germany)                         |        | 75       | Δ 1-559-297-31 | CORD, POWER (E)                                  |        |
| 55       | * 4-945-371-11 | PANEL, BACK (UK)  |        | 75       | Δ 1-575-953-11 | CORD, POWER (AEP, Germany)                       |        |
| 55       | * 4-945-371-21 | PANEL, BACK (F770ES(BLACK):AEP)                             |        | 76       | Δ 1-506-113-00 | SHORT PLUG                                       |        |
| 55       | * 4-945-371-31 | PANEL, BACK (F770ES(GOLD)/F870ES(GOLD))                     |        | 77       | 1-533-183-11   | HOLDER, FUSE                                     |        |
| 55       | * 4-945-372-01 | PANEL, BACK (E)   |        | 78       | 1-537-331-11   | TERMINAL BOARD (SP) (Germany:F870ES)             |        |
| 56       | * 4-923-873-01 | BRACKET, CORD STOPPER (F333ESL/F770ES(BLACK)/F870ES(BLACK)) |        | 78       | * 1-537-378-11 | TERMINAL BOARD (SP) (AE1, E, UK, Germany:F770ES) |        |
| 56       | * 4-923-873-11 | BRACKET, CORD STOPPER (F770ES(GOLD)/F870ES(GOLD))           |        | 78       | * 1-537-380-11 | TERMINAL BOARD (SP) (AE2)                        |        |
| 57       | 2-352-626-01   | BUSHING, CORD   |        | 79       | * 1-560-242-11 | BUS BAR 3P                                       |        |
| 58       | 9-911-843-XX   | CUSHION (TU)  |        | 80       | 3-701-947-18   | LABEL, FUSE                                      |        |
| 59       | * 4-843-416-11 | PLATE, FIXED, CAP   |        | 81       | Δ 1-569-007-11 | ADAPTER, CONVERSION 2P (E)                       |        |
| 60       | * 2-280-622-51 | SUPPORT (M3), HEXAGON                                       |        | 82       | * 1-637-837-12 | V. S. BOARD (E)                                  |        |
| 61       | * 1-580-242-61 | BUS BAR 2P  |        | 83       | * 1-639-110-11 | PREOUT BOARD                                     |        |
| 62       | * 1-535-691-21 | TERMINAL (F333ESL/F770ES)                                   |        | 84       | * 4-923-814-01 | PLATE, CONNECTION (AEP, UK, Germany)             |        |
| 62       | * 1-535-691-31 | TERMINAL (F870ES)   |        | CNJ801   | Δ 1-526-794-11 | OUTLET, AC (AEP, Germany)                        |        |
| 63       | * A-4345-485-A | CONTROL BOARD, COMPLETE                                     |        | CNJ801   | Δ 1-526-751-00 | OUTLET, AC (UK)                                  |        |
| 64       | * 1-637-081-11 | FUNCTION BOARD (F870ES)                                     |        | F1       | Δ 1-532-350-00 | FUSE, TIME-LAG 4A (F333ESL/F770ES)               |        |
| 64       | * 1-637-081-13 | FUNCTION BOARD (F333ESL/F770ES)                             |        | F2       | Δ 1-532-350-00 | FUSE, TIME-LAG 4A (F333ESL/F770ES)               |        |
| 65       | * 1-637-082-12 | VOL BOARD   |        | F802     | Δ 1-532-299-00 | FUSE, TIME-LAG 5A (F870ES)                       |        |
| 66       | * 1-637-084-11 | LED (VOL) BOARD   |        | F802     | Δ 1-532-350-00 | FUSE, TIME-LAG 4A (F333ESL/F770ES)               |        |
| 67       | * 1-637-087-11 | S. D. BOARD   |        | F803     | Δ 1-532-286-00 | FUSE, TIME-LAG 2.5A (F770ES/F870ES)              |        |
| 68       | * 1-637-088-12 | SP-SW BOARD   |        | S001     | 1-572-546-11   | SWITCH, ROTARY SLIDE (REMOTE)                    |        |
| 69       | * 1-637-089-12 | SP TERMINAL BOARD   |        | S002     | 1-572-547-11   | SWITCH, ROTARY SLIDE (REMOTE)                    |        |
|          |                |   |        | S003     | 1-572-548-11   | SWITCH, ROTARY SLIDE (REMOTE)                    |        |
|          |                |   |        | TP3      | 1-535-139-00   | BASE POST 14MM (10MM PITCH) 2P                   |        |



**Note:** The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety.  
Replace only with part number specified.

# TA-F333ESL/F770ES/F870ES

## (3) MAIN CHASSIS SECTION



| Ref. No. | Part No.       | Description                                       | Remark | Ref. No. | Part No.              | Description                              | Remark |
|----------|----------------|---|--------|----------|-----------------------|--|--------|
| 101      | 4-931-966-11   | RING, ORNAMENTAL (F870ES(GOLD))                   |        | C701     | 1-125-653-11          | CAP, ELECT 8200MF (F870ES)               |        |
| 101      | 4-931-967-02   | RING, ORNAMENTAL (F333ESL/F770ES(BLACK))          |        | C701     | 1-125-654-11          | CAP, ELECT 8200MF (F333ESL/F770ES)       |        |
| 101      | 4-931-967-21   | RING, ORNAMENTAL (F770ES(GOLD))                   |        | C702     | 1-125-655-11          | CAP, ELECT 22000MF (F870ES)              |        |
| 101      | 9-910-999-33   | RING, ORNAMENTAL (F870ES(BLACK))                  |        | C702     | 1-125-656-11          | CAP, ELECT 18000MF (F333ESL/F770ES)      |        |
| 102      | 4-908-888-01   | FOOT, TUNING (F333ESL/F770ES)                     |        | C751     | 1-125-653-11          | CAP, ELECT 8200MF (F870ES)               |        |
| 102      | 4-908-888-11   | FOOT, TUNING (F870ES)                             |        | C751     | 1-125-654-11          | CAP, ELECT 8200MF (F333ESL/F770ES)       |        |
| 103      | * A-4345-325-A | MAIN (A) BOARD, COMPLETE (E333ESL/F770ES:AEP, UK) |        | C752     | 1-125-656-11          | CAP, ELECT 18000MF (F333ESL/F770ES)      |        |
| 103      | * A-4345-331-A | MAIN (A) BOARD, COMPLETE (F770ES:Germany)         |        | C752     | 1-125-655-11          | CAP, ELECT 22000MF (F870ES)              |        |
| 103      | * A-4345-358-A | MAIN (A) BOARD, COMPLETE (F870ES)                 |        | D705     | 8-719-300-27          | DIODE CTU-22S                            |        |
| 104      | 4-931-976-01   | WASHER (BS)                                       |        | D755     | 8-719-300-25          | DIODE CTU-22R                            |        |
| 105      | 3-655-653-21   | BAND (TAITON), BINDING                            |        | Q205     | 8-729-127-53          | TRANSISTOR 2SC2275-P                     |        |
| 106      | 4-901-949-01   | SHEET, INSULATING                                 |        | Q255     | 8-729-141-10          | TRANSISTOR 2SA985-P                      |        |
| 107      | * A-4345-326-A | MAIN (B) BOARD, COMPLETE (E333ESL/F770ES:AEP, UK) |        | Q411     | 8-729-203-45          | TRANSISTOR 2SC3423-0                     |        |
| 107      | A-4345-332-A   | MAIN (B) BOARD, COMPLETE (F770ES:Germany)         |        | Q414     | 8-729-208-72          | TRANSISTOR 2SD1763A                      |        |
| 107      | * A-4345-359-A | MAIN (B) BOARD, COMPLETE (F870ES)                 |        | Q415     | 8-729-208-38          | TRANSISTOR 2SA1306A-0                    |        |
| 108      | * A-4345-327-A | EQ BOARD, COMPLETE (E333ESL/F770ES:AEP, UK)       |        | Q416     | 8-729-232-45          | TRANSISTOR 2SK1529-Y                     |        |
| 108      | * A-4345-333-A | EQ BOARD, COMPLETE (F770ES:Germany)               |        | Q417     | 8-729-232-45          | TRANSISTOR 2SK1529-Y                     |        |
| 108      | * A-4345-360-A | EQ BOARD, COMPLETE (F870ES)                       |        | Q418     | 8-729-232-46          | TRANSISTOR 2SJ200-Y                      |        |
| 109      | 4-921-437-01   | SCREW (M3X20), TAPPING                            |        | Q419     | 8-729-232-46          | TRANSISTOR 2SJ200-Y                      |        |
| 110      | * 1-560-242-31 | BUS BAR 5P  |        | Q461     | 8-729-203-45          | TRANSISTOR 2SC3423-0                     |        |
| 111      | * 4-931-964-01 | SCREW (M4X6)                                      |        | Q464     | 8-729-208-72          | TRANSISTOR 2SD1763A                      |        |
| 112      | * 4-921-402-01 | HEAT SINK   |        | Q465     | 8-729-208-38          | TRANSISTOR 2SA1306A-0                    |        |
| 113      | * 1-560-242-11 | BUS BAR 3P  |        | Q466     | 8-729-232-45          | TRANSISTOR 2SK1529-Y                     |        |
| 114      | * 1-560-242-21 | BUS BAR 4P  |        | Q467     | 8-729-232-45          | TRANSISTOR 2SK1529-Y                     |        |
| 115      | 4-309-378-00   | WASHER  |        | Q468     | 8-729-232-46          | TRANSISTOR 2SJ200-Y                      |        |
| 116      | * 4-931-970-01 | CUSHION   |        | Q469     | 8-729-232-46          | TRANSISTOR 2SJ200-Y                      |        |
| 117      | * 3-346-266-21 | PLATE, GROUND                                     |        | T901     | $\Delta$ 1-450-485-11 | TRANSFORMER, POWER (UK)                  |        |
| 118      | * 4-916-791-01 | PLATE, GROUND, 5P                                 |        | T901     | $\Delta$ 1-450-486-11 | TRANSFORMER, POWER (F333ESL)             |        |
| 119      | X-4941-233-1   | CHASSIS ASSY (F333ESL/F770ES)                     |        | T901     | $\Delta$ 1-450-487-11 | TRANSFORMER, POWER (AE1, Germany:F770ES) |        |
| 119      | X-4941-234-1   | CHASSIS ASSY (F870ES)                             |        | T901     | $\Delta$ 1-450-488-11 | TRANSFORMER, POWER (AE2, AEP:F770ES)     |        |
|          |                |   |        | T901     | $\Delta$ 1-450-489-11 | TRANSFORMER, POWER (Germany:F870ES)      |        |
|          |                |   |        | TP1      | 1-535-139-00          | BASE POST 14MM (10MM PITCH) 2P (F870ES)  |        |
|          |                |   |        | TP2      | 1-535-139-00          | BASE POST 14MM (10MM PITCH) 2P (F870ES)  |        |

## SECTION 7

## ELECTRICAL PARTS LIST

## MAIN (A)

## NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS  
All resistors are in ohms.  
METAL: Metal-film resistor  
METAL OXIDE: Metal Oxide-film resistor  
F: nonflammable

- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS  
In each case, u:  $\mu$ , for example:  
uA...:  $\mu$ A..., uPA...:  $\mu$ PA...,  
uPB...:  $\mu$ PB..., uPC...:  $\mu$ PC...,  
uPD...:  $\mu$ PD...
- CAPACITORS  
uF:  $\mu$ F
- COILS  
uH:  $\mu$ H

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

When including parts by reference number, please include the board name.

| Ref. No. | Part No.       | Description   | Remark | Ref. No.      | Part No.       | Description   | Remark |
|----------|----------------|---|--------|---------------|----------------|---|--------|
|          | * A-4345-325-A | MAIN (A) BOARD, COMPLETE<br>*****<br>(F333ESL/F770ES:AEP, UK) |        | C453          | 1-104-319-11   | POLYSTYRENE 10000PF 10% 125V(F870ES)                |        |
|          | * A-4345-331-A | MAIN (A) BOARD, COMPLETE(F770ES:Germany)<br>*****             |        | C453          | 1-137-337-21   | FILM 0.068uF 2% 100V(F333ESL/F770ES)                |        |
|          | * A-4345-358-A | MAIN (A) BOARD, COMPLETE (F870ES)<br>*****                    |        | C454          | 1-107-044-00   | MICA 3.3PF 500V                                     |        |
|          | * 1-560-242-11 | BUS BAR 3P  |        | C455          | 1-124-918-11   | ELECT 47uF 20% 63V                                  |        |
|          | * 1-560-242-21 | BUS BAR 4P  |        | C456          | 1-124-918-11   | ELECT 47uF 20% 63V                                  |        |
|          | < CAPACITOR >  |   |        | C457          | 1-104-274-11   | POLYSTYRENE 47PF 10% 50V<br>(F770ES:Germany/F870ES) |        |
| C401     | 1-104-321-11   | POLYSTYRENE 22PF 10% 400V(F870ES)                             |        | C458          | 1-124-748-11   | ELECT 22uF 20% 100V                                 |        |
| C401     | 1-104-327-11   | POLYSTYRENE 22PF 10% 125V<br>(F333ESL/F770ES)                 |        | C460          | 1-104-321-11   | POLYSTYRENE 22PF 10% 400V(F870ES)                   |        |
| C402     | 1-104-233-00   | POLYSTYRENE 220PF 10% 125V(F870ES)                            |        | C460          | 1-104-327-11   | POLYSTYRENE 22PF 10% 125V<br>(F333ESL/F770ES)       |        |
| C402     | 1-104-286-11   | POLYSTYRENE 220PF 5% 50V<br>(F333ESL/F770ES)                  |        | C461          | 1-124-130-00   | ELECT 100uF 20% 63V                                 |        |
| C403     | 1-104-319-11   | POLYSTYRENE 10000PF 10% 125V(F870ES)                          |        | C462          | 1-124-130-00   | ELECT 100uF 20% 63V                                 |        |
| C403     | 1-137-337-21   | FILM 0.068uF 2% 100V(F333ESL/F770ES)                          |        | C468          | 1-124-922-11   | ELECT 1000uF 20% 63V                                |        |
| C404     | 1-107-044-00   | MICA 3.3PF 500V   |        | C469          | 1-124-922-11   | ELECT 1000uF 20% 63V                                |        |
| C405     | 1-124-918-11   | ELECT 47uF 20% 63V  |        | < DIODE >     |                |   |        |
| C406     | 1-124-918-11   | ELECT 47uF 20% 63V  |        | D401          | 8-719-933-41   | DIODE HZS6C3L                                       |        |
| C407     | 1-104-274-11   | POLYSTYRENE 47PF 10% 50V<br>(F770ES:Germany/F870ES)           |        | D402          | 8-719-200-82   | DIODE 11ES2 (F870ES)                                |        |
| C408     | 1-124-748-11   | ELECT 22uF 20% 100V   |        | D402          | 8-719-912-20   | DIODE 1SS120 (F333ESL/F770ES)                       |        |
| C410     | 1-104-321-11   | POLYSTYRENE 22PF 10% 400V(F870ES)                             |        | D403          | 8-719-200-82   | DIODE 11ES2 (F870ES)                                |        |
| C410     | 1-104-327-11   | POLYSTYRENE 22PF 10% 125V<br>(F333ESL/F770ES)                 |        | D403          | 8-719-912-20   | DIODE 1SS120 (F333ESL/F770ES)                       |        |
| C411     | 1-124-130-00   | ELECT 100uF 20% 63V   |        | D409          | 8-719-815-85   | DIODE 1S1585  |        |
| C412     | 1-124-130-00   | ELECT 100uF 20% 63V   |        | D410          | 8-719-815-85   | DIODE 1S1585  |        |
| C418     | 1-124-922-11   | ELECT 1000uF 20% 63V  |        | D418          | 8-719-303-13   | DIODE SEL1210W                                      |        |
| C419     | 1-124-922-11   | ELECT 1000uF 20% 63V  |        | D451          | 8-719-933-41   | DIODE HZS6C3L                                       |        |
| C451     | 1-104-321-11   | POLYSTYRENE 22PF 10% 400V(F870ES)                             |        | D452          | 8-719-200-82   | DIODE 11ES2 (F870ES)                                |        |
| C451     | 1-104-327-11   | POLYSTYRENE 22PF 10% 125V<br>(F333ESL/F770ES)                 |        | D452          | 8-719-912-20   | DIODE 1SS120 (F333ESL/F770ES)                       |        |
| C452     | 1-104-233-00   | POLYSTYRENE 220PF 10% 125V(F870ES)                            |        | D453          | 8-719-200-82   | DIODE 11ES2 (F870ES)                                |        |
| C452     | 1-104-286-11   | POLYSTYRENE 220PF 5% 50V<br>(F333ESL/F770ES)                  |        | D453          | 8-719-912-20   | DIODE 1SS120 (F333ESL/F770ES)                       |        |
|          |                |   |        | D459          | 8-719-815-85   | DIODE 1S1585  |        |
|          |                |   |        | D460          | 8-719-815-85   | DIODE 1S1585  |        |
|          |                |   |        | D468          | 8-719-303-13   | DIODE SEL1210W                                      |        |
|          |                |   |        | < CONNECTOR > |                |   |        |
|          |                |   |        | EH15          | * 1-564-507-11 | PLUG, CONNECTOR 4P                                  |        |
|          |                |   |        | EH21          | * 1-564-507-11 | PLUG, CONNECTOR 4P                                  |        |
|          |                |   |        | EH22          | * 1-564-507-11 | PLUG, CONNECTOR 4P                                  |        |
|          |                |   |        | EH23          | * 1-564-506-11 | PLUG, CONNECTOR 3P                                  |        |
|          |                |   |        | EH24          | * 1-564-508-11 | PLUG, CONNECTOR 5P                                  |        |



MAIN (A)

MAIN (B)

| Ref.No.        | Part No.       | Description                         | Remark | Ref.No.   | Part No.     | Description                         | Remark |
|----------------|----------------|-------------------------------------|--------|---|--------------|-------------------------------------|--------|
| < COIL >       |                |                                     |        |   |              |                                     |        |
| L402           | * 1-428-203-11 | COIL, AIR-CORE                      |        | R445  | 1-219-022-11 | FUSIBLE 100 5% 1/2W                 |        |
| L403           | * 1-428-203-11 | COIL, AIR-CORE                      |        | R451  | 1-246-545-00 | CARBON 1.0M 5% 1/4W                 |        |
| L452           | * 1-428-203-11 | COIL, AIR-CORE                      |        | R452  | 1-247-713-11 | CARBON 1K 5% 1/4W                   |        |
| L453           | * 1-428-203-11 | COIL, AIR-CORE                      |        | R453  | 1-249-520-11 | CARBON 47 5% 1/4W                   |        |
| < TRANSISTOR > |                |                                     |        | R454  | 1-249-520-11 | CARBON 47 5% 1/4W                   |        |
| Q401           | 8-729-203-21   | TRANSISTOR 2SK389-GR                |        | R455  | 1-247-717-11 | CARBON 2.2K 5% 1/4W                 |        |
| Q402           | 8-729-281-54   | TRANSISTOR 2SC1815-BL               |        | R456  | 1-246-531-00 | CARBON 270K 5% 1/4W                 |        |
| Q403           | 8-729-281-54   | TRANSISTOR 2SC1815-BL               |        | R457  | 1-247-704-11 | CARBON 220 5% 1/4W                  |        |
| Q404           | 8-729-232-00   | TRANSISTOR 2SA1349-GRBL             |        | R458  | 1-219-030-11 | FUSIBLE 220 5% 1/2W                 |        |
| Q405           | 8-729-209-17   | TRANSISTOR 2SA1360-0                |        | R459  | 1-219-030-11 | FUSIBLE 220 5% 1/2W                 |        |
| Q406           | 8-729-104-91   | TRANSISTOR 2SA1383                  |        | R460  | 1-214-937-00 | METAL 1M 1% 1/2W                    |        |
| Q407           | 8-729-201-56   | TRANSISTOR 2SK246-GR2               |        | R462  | 1-219-010-11 | FUSIBLE 33 5% 1/2W                  |        |
| Q408           | 8-729-104-18   | TRANSISTOR 2SC3514                  |        | R463  | 1-249-490-11 | CARBON 27K 5% 1/2W                  |        |
| Q409           | 8-729-104-18   | TRANSISTOR 2SC3514                  |        | R464  | 1-247-704-11 | CARBON 220 5% 1/4W                  |        |
| Q451           | 8-729-203-21   | TRANSISTOR 2SK389-GR                |        | R465  | 1-246-531-00 | CARBON 270K 5% 1/4W                 |        |
| Q452           | 8-729-281-54   | TRANSISTOR 2SC1815-BL               |        | R466  | 1-247-740-11 | CARBON 120 5% 1/2W (F333ESL/F770ES) |        |
| Q453           | 8-729-281-54   | TRANSISTOR 2SC1815-BL               |        | R466  | 1-259-533-11 | CARBON 120 1% 1/2W (F870ES)         |        |
| Q454           | 8-729-232-00   | TRANSISTOR 2SA1349-GRBL             |        | R467  | 1-259-580-11 | CARBON 11K 5% 1/2W                  |        |
| Q455           | 8-729-209-17   | TRANSISTOR 2SA1360-0                |        | R468  | 1-259-580-11 | CARBON 11K 5% 1/2W                  |        |
| Q456           | 8-729-104-91   | TRANSISTOR 2SA1383                  |        | R469  | 1-259-503-11 | CARBON 4.7M 5% 1/2W                 |        |
| Q457           | 8-729-201-56   | TRANSISTOR 2SK246-GR2               |        | R470  | 1-249-556-11 | CARBON 1.5K 5% 1/4W                 |        |
| Q458           | 8-729-104-18   | TRANSISTOR 2SC3514                  |        | R471  | 1-247-721-11 | CARBON 4.7K 5% 1/4W                 |        |
| Q459           | 8-729-104-18   | TRANSISTOR 2SC3514                  |        | R472  | 1-219-022-11 | FUSIBLE 100 5% 1/2W                 |        |
| < RESISTOR >   |                |                                     |        | R494  | 1-219-022-11 | FUSIBLE 100 5% 1/2W                 |        |
| R401           | 1-246-545-00   | CARBON 1.0M 5% 1/4W                 |        | R495  | 1-219-022-11 | FUSIBLE 100 5% 1/2W                 |        |
| R402           | 1-247-713-11   | CARBON 1K 5% 1/4W                   |        | R701  | 1-219-024-91 | FUSIBLE 120 5% 1/2W                 |        |
| R403           | 1-249-520-11   | CARBON 47 5% 1/4W                   |        | R751  | 1-219-024-91 | FUSIBLE 120 5% 1/2W                 |        |
| R404           | 1-249-520-11   | CARBON 47 5% 1/4W                   |        | < VARIABLE RESISTOR >                                   |              |                                     |        |
| R405           | 1-247-717-11   | CARBON 2.2K 5% 1/4W                 |        | RT401   | 1-237-498-21 | RES, ADJ, METAL FILM 220            |        |
|                |                |                                     |        | RT451   | 1-237-498-21 | RES, ADJ, METAL FILM 220            |        |
|                |                |                                     |        | *****   |              |                                     |        |
| R406           | 1-246-531-00   | CARBON 270K 5% 1/4W                 |        | * A-4345-326-A MAIN (B) BOARD, COMPLETE                 |              |                                     |        |
| R407           | 1-247-704-11   | CARBON 220 5% 1/4W                  |        | *****   |              |                                     |        |
| R408           | 1-219-030-11   | FUSIBLE 220 5% 1/2W                 |        | (F333ESL/F770ES:AEP, UK)                                |              |                                     |        |
| R409           | 1-219-030-11   | FUSIBLE 220 5% 1/2W                 |        | * A-4345-332-A MAIN (B) BOARD, COMPLETE(F770ES:Germany) |              |                                     |        |
| R410           | 1-214-937-00   | METAL 1M 1% 1/2W                    |        | *****   |              |                                     |        |
| R412           | 1-219-010-11   | FUSIBLE 33 5% 1/2W                  |        | * A-4345-359-A MAIN (B) BOARD, COMPLETE (F870ES)        |              |                                     |        |
| R413           | 1-249-490-11   | CARBON 27K 5% 1/2W                  |        | *****   |              |                                     |        |
| R414           | 1-247-704-11   | CARBON 220 5% 1/4W                  |        |   |              |                                     |        |
| R415           | 1-246-531-00   | CARBON 270K 5% 1/4W                 |        | * 1-560-242-31 BUS BAR 5P                               |              |                                     |        |
| R416           | 1-247-740-11   | CARBON 120 5% 1/2W (F333ESL/F770ES) |        | * 3-346-266-21 PLATE, GROUND                            |              |                                     |        |
| R416           | 1-259-533-11   | CARBON 120 1% 1/2W (F870ES)         |        | * 4-916-791-01 PLATE, GROUND, 5P                        |              |                                     |        |
| R417           | 1-259-580-11   | CARBON 11K 5% 1/2W                  |        | * 4-921-402-01 HEAT SINK                                |              |                                     |        |
| R418           | 1-259-580-11   | CARBON 11K 5% 1/2W                  |        | 7-682-548-09 SCREW +B 3X8                               |              |                                     |        |
| R419           | 1-259-503-11   | CARBON 4.7M 5% 1/2W                 |        | < CAPACITOR >   |              |                                     |        |
| R420           | 1-249-556-11   | CARBON 1.5K 5% 1/4W                 |        |   |              |                                     |        |
| R421           | 1-247-721-11   | CARBON 4.7K 5% 1/4W                 |        | C416  | 1-136-161-00 | FILM 0.047uF 5% 50V                 |        |
| R422           | 1-219-022-11   | FUSIBLE 100 5% 1/2W                 |        | C417  | 1-136-161-00 | FILM 0.047uF 5% 50V                 |        |
| R444           | 1-219-022-11   | FUSIBLE 100 5% 1/2W                 |        |   |              |                                     |        |

## MAIN (B)

| Ref. No.      | Part No.       | Description                         | Remark | Ref. No.       | Part No.      | Description              | Remark |
|---------------|----------------|-------------------------------------|--------|----------------|---------------|--------------------------|--------|
| C422          | 1-136-161-00   | FILM 0.047uF 5% 50V                 |        | < TRANSISTOR > |               |                          |        |
| C423          | 1-161-379-00   | CERAMIC 0.01uF 20% 25V              |        | Q410           | 8-729-209-17  | TRANSISTOR 2SA1360-0     |        |
|               |                | (F770ES:Germany/F870ES)             |        | Q420           | 8-729-140-82  | TRANSISTOR 2SA988-PAFAEA |        |
| C466          | 1-136-161-00   | FILM 0.047uF 5% 50V                 |        | Q460           | 8-729-209-17  | TRANSISTOR 2SA1360-0     |        |
| C467          | 1-136-161-00   | FILM 0.047uF 5% 50V                 |        | Q470           | 8-729-140-82  | TRANSISTOR 2SA988-PAFAEA |        |
| C472          | 1-136-161-00   | FILM 0.047uF 5% 50V                 |        | < RESISTOR >   |               |                          |        |
| C601          | 1-123-334-00   | ELECT 220uF 20% 25V                 |        | R423           | 1-247-714-11  | CARBON 1.2K 5% 1/4W      |        |
| C602          | 1-136-157-00   | FILM 0.022uF 5% 50V                 |        | R424           | 1-247-719-11  | CARBON 3.3K 5% 1/4W      |        |
| C603          | 1-136-157-00   | FILM 0.022uF 5% 50V                 |        | R425           | 1-247-711-11  | CARBON 680 5% 1/4W       |        |
| C604          | 1-124-122-11   | ELECT 100uF 20% 50V(F870ES)         |        | R427           | 1-219-022-11  | FUSIBLE 100 5% 1/2W      |        |
| C604          | 1-124-910-11   | ELECT 47uF 20% 50V(F333ESL/F770ES)  |        | R428           | 1-219-022-11  | FUSIBLE 100 5% 1/2W      |        |
| C606          | 1-123-380-00   | ELECT 1uF 20% 100V                  |        | R429           | 1-219-030-11  | FUSIBLE 220 5% 1/2W      |        |
| C607          | 1-126-066-11   | ELECT 470uF 20% 63V                 |        | R430           | 1-212-974-00  | FUSIBLE 47 5% 1/2W       |        |
| C703          | 1-128-201-11   | ELECT 100uF 20% 63V(F870ES)         |        | R431           | 1-212-974-00  | FUSIBLE 47 5% 1/2W       |        |
| C703          | 1-124-920-11   | ELECT 330uF 20% 63V(F333ESL/F770ES) |        | R432           | 1-212-974-00  | FUSIBLE 47 5% 1/2W       |        |
| C705          | 1-137-213-11   | FILM 2.2uF 5% 100V                  |        | R433           | 1-212-974-00  | FUSIBLE 47 5% 1/2W       |        |
| C753          | 1-124-920-11   | ELECT 330uF 20% 63V(F333ESL/F770ES) |        | R434           | 1-217-151-00  | RES, METAL PLATE 0.22    |        |
| C753          | 1-128-201-11   | ELECT 100uF 20% 63V(F870ES)         |        | R435           | 1-217-151-00  | RES, METAL PLATE 0.22    |        |
| < DIODE >     |                |                                     |        | R436           | 1-217-151-00  | RES, METAL PLATE 0.22    |        |
| D405          | 8-719-912-20   | DIODE 1SS120                        |        | R437           | 1-217-151-00  | RES, METAL PLATE 0.22    |        |
| D406          | 8-719-985-53   | DIODE HZS4ALL                       |        | R438           | △1-247-692-11 | CARBON 22 5% 1/4W F      |        |
| D408          | 8-719-303-13   | DIODE SEL1210W                      |        | R439           | △1-247-692-11 | CARBON 22 5% 1/4W F      |        |
| D411          | 8-719-912-20   | DIODE 1SS120                        |        | R440           | △1-247-717-11 | CARBON 2.2K 5% 1/4W F    |        |
| D412          | 8-719-985-53   | DIODE HZS4ALL                       |        | R441           | 1-249-460-11  | CARBON 15K 5% 1/4W       |        |
| D415          | 8-719-912-20   | DIODE 1SS120                        |        | R442           | 1-219-002-11  | FUSIBLE 15 5% 1/2W       |        |
| D416          | 8-719-912-20   | DIODE 1SS120                        |        | R447           | 1-247-711-11  | CARBON 680 5% 1/4W       |        |
| D455          | 8-719-912-20   | DIODE 1SS120                        |        | R449           | 1-219-002-11  | FUSIBLE 15 5% 1/2W       |        |
| D456          | 8-719-985-53   | DIODE HZS4ALL                       |        | R473           | 1-247-714-11  | CARBON 1.2K 5% 1/4W      |        |
| D458          | 8-719-303-13   | DIODE SEL1210W                      |        | R474           | 1-247-719-11  | CARBON 3.3K 5% 1/4W      |        |
| D461          | 8-719-912-20   | DIODE 1SS120                        |        | R475           | 1-247-711-11  | CARBON 680 5% 1/4W       |        |
| D462          | 8-719-985-53   | DIODE HZS4ALL                       |        | R477           | 1-219-022-11  | FUSIBLE 100 5% 1/2W      |        |
| D465          | 8-719-912-20   | DIODE 1SS120                        |        | R478           | 1-219-022-11  | FUSIBLE 100 5% 1/2W      |        |
| D466          | 8-719-912-20   | DIODE 1SS120                        |        | R479           | 1-219-030-11  | FUSIBLE 220 5% 1/2W      |        |
| D601          | 8-719-200-82   | DIODE 11ES2                         |        | R480           | 1-212-974-00  | FUSIBLE 47 5% 1/2W       |        |
| D602          | 8-719-200-82   | DIODE 11ES2                         |        | R481           | 1-212-974-00  | FUSIBLE 47 5% 1/2W       |        |
| D603          | 8-719-200-82   | DIODE 11ES2                         |        | R482           | 1-212-974-00  | FUSIBLE 47 5% 1/2W       |        |
| D701          | 8-719-230-02   | DIODE 30DF2                         |        | R483           | 1-212-974-00  | FUSIBLE 47 5% 1/2W       |        |
| D702          | 8-719-230-02   | DIODE 30DF2                         |        | R484           | 1-217-151-00  | RES, METAL PLATE 0.22    |        |
| D703          | 8-719-230-02   | DIODE 30DF2                         |        | R485           | 1-217-151-00  | RES, METAL PLATE 0.22    |        |
| D704          | 8-719-230-02   | DIODE 30DF2                         |        | R486           | 1-217-151-00  | RES, METAL PLATE 0.22    |        |
| D705          | 8-719-300-27   | DIODE CTU-22S                       |        | R487           | 1-217-151-00  | RES, METAL PLATE 0.22    |        |
| D755          | 8-719-300-25   | DIODE CTU-22R                       |        | R488           | △1-247-692-11 | CARBON 22 5% 1/4W F      |        |
| < CONNECTOR > |                |                                     |        | R489           | △1-247-692-11 | CARBON 22 5% 1/4W F      |        |
| EH25          | * 1-564-508-11 | PLUG, CONNECTOR 5P                  |        | R490           | △1-247-717-11 | CARBON 2.2K 5% 1/4W F    |        |
| EH41          | * 1-564-505-11 | PLUG, CONNECTOR 2P                  |        | R491           | 1-249-460-11  | CARBON 15K 5% 1/4W       |        |
| < IC >        |                |                                     |        | R492           | 1-219-002-11  | FUSIBLE 15 5% 1/2W       |        |
| IC601         | 8-759-111-68   | IC uPC1237HA                        |        | R497           | 1-247-711-11  | CARBON 680 5% 1/4W       |        |
|               |                |                                     |        | R499           | 1-219-002-11  | FUSIBLE 15 5% 1/2W       |        |
|               |                |                                     |        | R601           | 1-247-891-00  | CARBON 330K 5% 1/4W      |        |

**Note:** The components identified by mark △ or dotted line with mark △ are critical for safety.  
Replace only with part number specified.

MAIN (B)

EQ

| Ref. No. | Part No.       | Description  | Remark | Ref. No. | Part No.       | Description                          | Remark |
|----------|----------------|--|--------|----------|----------------|--------------------------------------|--------|
| R602     | 1-247-887-00   | CARBON 220K 5% 1/4W                                |        | C207     | 1-137-333-31   | FILM 0.056uF 2% 100V(F870ES)         |        |
| R603     | 1-247-725-11   | CARBON 10K 5% 1/4W                                 |        | C207     | 1-137-335-31   | FILM 0.056uF 2% 630V(F333ESL/F770ES) |        |
| R604     | 1-249-461-11   | CARBON 18K 5% 1/4W                                 |        | C209     | 1-124-922-11   | ELECT 1000uF 20% 63V(F870ES)         |        |
| R605     | 1-249-606-11   | CARBON 180K 5% 1/4W (F870ES)                       |        | C209     | 1-126-066-11   | ELECT 470uF 20% 63V(F333ESL/F770ES)  |        |
| R605     | 1-249-609-11   | CARBON 240K 5% 1/4W(F333ESL/F770ES)                |        | C211     | 1-124-122-11   | ELECT 100uF 20% 50V                  |        |
| R617     | 1-249-462-11   | CARBON 22K 5% 1/4W                                 |        | C212     | 1-123-604-00   | ELECT 220uF 20% 63V                  |        |
| R651     | 1-247-891-00   | CARBON 330K 5% 1/4W                                |        | C213     | 1-101-880-00   | CERAMIC 47PF 5% 50V                  |        |
| R652     | 1-247-721-11   | CARBON 4.7K 5% 1/4W                                |        |          |                | (F770ES:Germany/F870ES)              |        |
| R653     | △1-212-934-00  | FUSIBLE 1 5% 1/2W F                                |        | C214     | 1-161-379-00   | CERAMIC 0.01uF 20% 25V               |        |
|          |                | ( VARIABLE RESISTOR )                              |        |          |                | (F770ES:Germany/F870ES)              |        |
| RT402    | 1-224-249-XX   | RES, ADJ, SOLID 1K                                 |        | C251     | 1-104-278-11   | POLYSTYRENE 100PF 5% 50V             |        |
| RT452    | 1-224-249-XX   | RES, ADJ, SOLID 1K                                 |        |          |                | (F770ES:Germany/F870ES)              |        |
|          |                | ( CONNECTOR )                                      |        | C251     | 1-104-290-11   | POLYSTYRENE 330PF 5% 50V             |        |
| SE1      | 1-564-242-00   | PIN, CONNECTOR 5P                                  |        |          |                | (F333ESL/F770ES:AEP, UK)             |        |
|          |                | ( BASE POST )                                      |        | C252     | 1-137-336-91   | FILM 0.022uF 2% 100V                 |        |
| TP1      | 1-535-139-00   | BASE POST 14MM (10MM PITCH) 2P (F870ES)            |        | C253     | 1-124-748-11   | ELECT 22uF 20% 100V(F870ES)          |        |
| TP2      | 1-535-139-00   | BASE POST 14MM (10MM PITCH) 2P (F870ES)            |        | C253     | 1-124-916-11   | ELECT 22uF 20% 63V(F333ESL/F770ES)   |        |
|          |                | ( CONNECTOR )                                      |        | C254     | 1-124-918-11   | ELECT 47uF 20% 63V(F333ESL/F770ES)   |        |
| VH4      | * 1-564-104-00 | PIN, CONNECTOR 3P                                  |        | C254     | 1-126-359-11   | ELECT 47uF 20% 80V(F870ES)           |        |
| VH5      | * 1-564-241-00 | PIN, CONNECTOR 4P                                  |        | C256     | 1-137-332-31   | FILM 0.016uF 2% 100V(F870ES)         |        |
| VH6      | * 1-564-241-00 | PIN, CONNECTOR 4P                                  |        | C256     | 1-137-334-31   | FILM 0.016uF 2% 630V(F333ESL/F770ES) |        |
|          |                | *****  |        | C257     | 1-137-333-31   | FILM 0.056uF 2% 100V(F870ES)         |        |
|          |                | * A-4345-327-A EQ BOARD, COMPLETE                  |        | C257     | 1-137-335-31   | FILM 0.056uF 2% 630V(F333ESL/F770ES) |        |
|          |                | *****  |        | C259     | 1-124-922-11   | ELECT 1000uF 20% 63V(F870ES)         |        |
|          |                | (F333ESL/F770ES:AEP, UK)                           |        | C259     | 1-126-066-11   | ELECT 470uF 20% 63V(F333ESL/F770ES)  |        |
|          |                | * A-4345-333-A EQ BOARD, COMPLETE (F770ES:Germany) |        | C261     | 1-124-122-11   | ELECT 100uF 20% 50V                  |        |
|          |                | *****  |        | C262     | 1-123-604-00   | ELECT 220uF 20% 63V                  |        |
|          |                | * A-4345-360-A EQ BOARD, COMPLETE (F870ES)         |        | C263     | 1-101-880-00   | CERAMIC 47PF 5% 50V                  |        |
|          |                | *****  |        |          |                | (F770ES:Germany/F870ES)              |        |
|          |                | * 4-921-402-01 HEAT SINK                           |        |          |                | ( DIODE )                            |        |
|          |                | 7-682-548-09 SCREW +B 3X8                          |        | D202     | 8-719-933-36   | DIODE HZS6B1L                        |        |
|          |                | ( CAPACITOR )                                      |        | D252     | 8-719-933-36   | DIODE HZS6B1L                        |        |
| C201     | 1-104-278-11   | POLYSTYRENE 100PF 5% 50V                           |        |          |                | ( CONNECTOR )                        |        |
|          |                | (F770ES:Germany/F870ES)                            |        | EH17     | * 1-564-508-11 | PLUG, CONNECTOR 5P                   |        |
| C201     | 1-104-290-11   | POLYSTYRENE 330PF 5% 50V                           |        | EH18     | * 1-564-506-11 | PLUG, CONNECTOR 3P                   |        |
|          |                | (F333ESL/F770ES:AEP, UK)                           |        | EH19     | * 1-564-506-11 | PLUG, CONNECTOR 3P                   |        |
| C202     | 1-137-336-91   | FILM 0.022uF 2% 100V                               |        | EH20     | * 1-564-507-11 | PLUG, CONNECTOR 4P                   |        |
| C203     | 1-124-748-11   | ELECT 22uF 20% 100V(F870ES)                        |        |          |                | ( IC )                               |        |
| C203     | 1-124-916-11   | ELECT 22uF 20% 63V(F333ESL/F770ES)                 |        | IC201    | 8-759-711-53   | IC NJM2068S-D                        |        |
| C204     | 1-124-918-11   | ELECT 47uF 20% 63V(F333ESL/F770ES)                 |        | IC251    | 8-759-711-53   | IC NJM2068S-D                        |        |
| C204     | 1-126-359-11   | ELECT 47uF 20% 80V(F870ES)                         |        |          |                | ( TRANSISTOR )                       |        |
| C206     | 1-137-332-31   | FILM 0.016uF 2% 100V(F870ES)                       |        | Q201     | 8-729-214-73   | TRANSISTOR 2SK147-V                  |        |
| C206     | 1-137-334-31   | FILM 0.016uF 2% 630V(F333ESL/F770ES)               |        |          |                | (F770ES:Germany/F870ES)              |        |
|          |                |  |        | Q201     | 8-729-217-04   | TRANSISTOR 2SK170-V                  |        |
|          |                |  |        |          |                | (F333ESL/F770ES:AEP, UK)             |        |
|          |                |  |        | Q202     | 8-729-203-45   | TRANSISTOR 2SC3423-0                 |        |
|          |                |  |        | Q203     | 8-729-281-54   | TRANSISTOR 2SC1815-BL                |        |
|          |                |  |        | Q204     | 8-729-201-56   | TRANSISTOR 2SK246-GR2                |        |

Note: The components identified by mark △ or dotted line with mark △ are critical for safety.  
Replace only with part number specified.

EQ

FUNCTION

| Ref. No.     | Part No.     | Description                                     | Remark | Ref. No.  | Part No.       | Description                                     | Remark |
|--------------|--------------|---|--------|---|----------------|---|--------|
| Q205         | 8-729-127-53 | TRANSISTOR 2SC2275-P                            |        | R225  | 1-219-024-91   | FUSIBLE 120 5% 1/2W                             |        |
| Q206         | 8-729-201-56 | TRANSISTOR 2SK246-GR2                           |        | R251  | 1-249-465-11   | CARBON 47K 5% 1/4W                              |        |
| Q207         | 8-729-281-54 | TRANSISTOR 2SC1815-BL                           |        | R252  | 1-247-706-11   | CARBON 330 5% 1/4W                              |        |
| Q208         | 8-729-281-54 | TRANSISTOR 2SC1815-BL                           |        | R253  | 1-247-713-11   | CARBON 1K 5% 1/4W                               |        |
| Q209         | 8-729-214-73 | TRANSISTOR 2SK147-V<br>(F770ES:Germany/F870ES)  |        | R254  | 1-247-700-11   | CARBON 100 5% 1/4W                              |        |
| Q209         | 8-729-217-04 | TRANSISTOR 2SK170-V<br>(F333ESL/F770ES:AEP, UK) |        | R255  | 1-247-128-00   | CARBON 750 5% 1/4W                              |        |
| Q251         | 8-729-214-73 | TRANSISTOR 2SK147-V<br>(F770ES:Germany/F870ES)  |        | R256  | 1-247-128-00   | CARBON 750 5% 1/4W                              |        |
| Q251         | 8-729-217-04 | TRANSISTOR 2SK170-V<br>(F333ESL/F770ES:AEP, UK) |        | R257  | 1-247-700-11   | CARBON 100 5% 1/4W<br>(F333ESL/F770ES:AEP, UK)  |        |
| Q252         | 8-729-203-45 | TRANSISTOR 2SC3423-0                            |        | R257  | 1-249-512-11   | CARBON 22 5% 1/4W<br>(F770ES:Germany/F870ES)    |        |
| Q253         | 8-729-281-54 | TRANSISTOR 2SC1815-BL                           |        | R258  | 1-247-708-11   | CARBON 470 5% 1/4W                              |        |
| Q254         | 8-729-201-56 | TRANSISTOR 2SK246-GR2                           |        | R259  | 1-249-518-11   | CARBON 39 5% 1/4W                               |        |
| Q255         | 8-729-141-10 | TRANSISTOR 2SA985-QP                            |        | R260  | 1-247-704-11   | CARBON 220 5% 1/4W                              |        |
| Q256         | 8-729-201-56 | TRANSISTOR 2SK246-GR2                           |        | R261  | 1-247-721-11   | CARBON 4. 7K 5% 1/4W                            |        |
| Q257         | 8-729-201-53 | TRANSISTOR 2SA1015-GR                           |        | R262  | 1-246-545-00   | CARBON 1. 0M 5% 1/4W                            |        |
| Q258         | 8-729-201-53 | TRANSISTOR 2SA1015-GR                           |        | R263  | 1-249-844-11   | CARBON 56K 1% 1/2W                              |        |
| Q259         | 8-729-214-73 | TRANSISTOR 2SK147-V<br>(F770ES:Germany/F870ES)  |        | R264  | 1-247-700-11   | CARBON 100 5% 1/4W                              |        |
| Q259         | 8-729-217-04 | TRANSISTOR 2SK170-V<br>(F333ESL/F770ES:AEP, UK) |        | R265  | 1-259-571-11   | CARBON 4. 7K 1% 1/2W (F870ES)                   |        |
| < RESISTOR > |              |   |        | R265  | 1-249-818-11   | CARBON 4. 7K 1% 1/2W (F333ESL/F770ES)           |        |
| R201         | 1-249-465-11 | CARBON 47K 5% 1/4W                              |        | R267  | 1-260-661-11   | CARBON 6. 8 5% 1/4W                             |        |
| R202         | 1-247-706-11 | CARBON 330 5% 1/4W                              |        | R268  | 1-247-700-11   | CARBON 100 5% 1/4W                              |        |
| R203         | 1-247-713-11 | CARBON 1K 5% 1/4W                               |        | R269  | 1-247-704-11   | CARBON 220 5% 1/4W                              |        |
| R204         | 1-247-700-11 | CARBON 100 5% 1/4W                              |        | R270  | 1-247-725-11   | CARBON 10K 5% 1/4W                              |        |
| R205         | 1-247-128-00 | CARBON 750 5% 1/4W                              |        | R271  | 1-247-704-11   | CARBON 220 5% 1/4W                              |        |
| R206         | 1-247-128-00 | CARBON 750 5% 1/4W                              |        | R272  | 1-247-717-11   | CARBON 2. 2K 5% 1/4W                            |        |
| R207         | 1-247-700-11 | CARBON 100 5% 1/4W<br>(F333ESL/F770ES:AEP, UK)  |        | R273  | 1-247-723-11   | CARBON 6. 8K 5% 1/4W                            |        |
| R207         | 1-249-512-11 | CARBON 22 5% 1/4W<br>(F770ES:Germany/F870ES)    |        | R274  | 1-247-713-11   | CARBON 1K 5% 1/4W                               |        |
| R208         | 1-247-708-11 | CARBON 470 5% 1/4W                              |        | R275  | 1-219-024-91   | FUSIBLE 120 5% 1/2W                             |        |
| R209         | 1-249-518-11 | CARBON 39 5% 1/4W                               |        | < SWITCH >  |                |   |        |
| R210         | 1-247-704-11 | CARBON 220 5% 1/4W                              |        | S201  | 1-554-019-21   | SWITCH, SLIDE (REMOTE TYPE)<br>(CARTRIDGE LOAD) |        |
| R211         | 1-247-721-11 | CARBON 4. 7K 5% 1/4W                            |        | *****   |                |   |        |
| R212         | 1-246-545-00 | CARBON 1. 0M 5% 1/4W                            |        | * 1-637-081-11 FUNCTION BOARD (F870ES)<br>*****         |                |   |        |
| R213         | 1-249-844-11 | CARBON 56K 1% 1/2W                              |        | * 1-637-081-13 FUNCTION BOARD (F333ESL/F770ES)<br>***** |                |   |        |
| R214         | 1-247-700-11 | CARBON 100 5% 1/4W                              |        | * 1-564-599-11 PIN, CONNECTOR 8P                        |                |   |        |
| R215         | 1-249-818-11 | CARBON 4. 7K 1% 1/2W (F333ESL/F770ES)           |        | < CAPACITOR >   |                |   |        |
| R215         | 1-259-571-11 | CARBON 4. 7K 1% 1/2W (F870ES)                   |        | C916  | 1-124-631-11   | ELECT 47uF 20% 16V                              |        |
| R217         | 1-260-661-11 | CARBON 6. 8 5% 1/4W                             |        | < CONNECTOR >   |                |   |        |
| R218         | 1-247-700-11 | CARBON 100 5% 1/4W                              |        | EH16  | * 1-564-506-11 | PLUG, CONNECTOR 3P                              |        |
| R219         | 1-247-704-11 | CARBON 220 5% 1/4W                              |        | EH35  | * 1-564-512-11 | PLUG, CONNECTOR 9P                              |        |
| R220         | 1-247-725-11 | CARBON 10K 5% 1/4W                              |        | EH40  | * 1-564-505-11 | PLUG, CONNECTOR 2P                              |        |
| R221         | 1-247-704-11 | CARBON 220 5% 1/4W                              |        | EH42  | * 1-564-506-11 | PLUG, CONNECTOR 3P                              |        |
| R222         | 1-247-717-11 | CARBON 2. 2K 5% 1/4W                            |        |   |                |   |        |
| R223         | 1-247-723-11 | CARBON 6. 8K 5% 1/4W                            |        |   |                |   |        |
| R224         | 1-247-713-11 | CARBON 1K 5% 1/4W                               |        |   |                |   |        |



## SP-SW

## SP TERMINAL

## TONE

| Ref.No. | Part No. | Description | Remark |
|---------|----------|-------------|--------|
|---------|----------|-------------|--------|

\* 1-637-088-12 SP-SW BOARD  
\*\*\*\*\*

< CAPACITOR >

|      |              |       |        |    |      |
|------|--------------|-------|--------|----|------|
| C611 | 1-106-343-00 | MYLAR | 1000PF | 5% | 200V |
|------|--------------|-------|--------|----|------|

< CONNECTOR >

|      |                |                    |
|------|----------------|--------------------|
| EH32 | * 1-564-506-11 | PLUG, CONNECTOR 3P |
|------|----------------|--------------------|

< RESISTOR >

|      |              |        |     |    |      |
|------|--------------|--------|-----|----|------|
| R618 | 1-247-741-11 | CARBON | 150 | 5% | 1/2W |
| R619 | 1-247-741-11 | CARBON | 150 | 5% | 1/2W |
| R621 | 1-247-747-11 | CARBON | 470 | 5% | 1/2W |
| R623 | 1-247-747-11 | CARBON | 470 | 5% | 1/2W |
| R625 | 1-247-747-11 | CARBON | 470 | 5% | 1/2W |
| R627 | 1-247-747-11 | CARBON | 470 | 5% | 1/2W |

< SWITCH >

|      |              |                           |
|------|--------------|---------------------------|
| S601 | 1-572-107-11 | SWITCH, ROTARY (SPEAKERS) |
|------|--------------|---------------------------|

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\* 1-637-089-12 SP TERMINAL BOARD  
\*\*\*\*\*

\* 1-560-242-11 BUS BAR 3P  
\* 1-560-242-61 BUS BAR 2P  
\* 4-843-416-11 PLATE, FIXED, CAP

< CAPACITOR >

|      |              |                         |          |     |      |
|------|--------------|-------------------------|----------|-----|------|
| C501 | 1-106-361-00 | MYLAR                   | 0.0056uF | 10% | 100V |
|      |              | (F770ES:Germany/F870ES) |          |     |      |
| C502 | 1-102-820-00 | CERAMIC                 | 330PF    | 5%  | 50V  |
|      |              | (F770ES:Germany/F870ES) |          |     |      |
| C551 | 1-106-361-00 | MYLAR                   | 0.0056uF | 10% | 100V |
|      |              | (F770ES:Germany/F870ES) |          |     |      |
| C552 | 1-102-820-00 | CERAMIC                 | 330PF    | 5%  | 50V  |
|      |              | (F770ES:Germany/F870ES) |          |     |      |

< DIODE >

|      |              |              |
|------|--------------|--------------|
| D612 | 8-719-912-20 | DIODE 1SS120 |
| D613 | 8-719-912-20 | DIODE 1SS120 |

< CONNECTOR >

|      |                |                    |
|------|----------------|--------------------|
| EH31 | * 1-564-506-11 | PLUG, CONNECTOR 3P |
| EH33 | * 1-564-506-11 | PLUG, CONNECTOR 3P |
| EH45 | * 1-564-507-11 | PLUG, CONNECTOR 4P |

< COIL >

|      |                |                |
|------|----------------|----------------|
| L401 | * 1-422-009-13 | COIL, AIR-CORE |
| L451 | * 1-422-009-13 | COIL, AIR-CORE |

| Ref.No. | Part No. | Description | Remark |
|---------|----------|-------------|--------|
|---------|----------|-------------|--------|

< RESISTOR >

|      |              |        |     |    |      |
|------|--------------|--------|-----|----|------|
| R443 | 1-247-727-11 | CARBON | 10  | 5% | 1/2W |
| R446 | 1-247-747-11 | CARBON | 470 | 5% | 1/2W |
| R450 | 1-247-747-11 | CARBON | 470 | 5% | 1/2W |
| R493 | 1-247-727-11 | CARBON | 10  | 5% | 1/2W |
| R496 | 1-247-747-11 | CARBON | 470 | 5% | 1/2W |

|      |              |        |      |    |      |
|------|--------------|--------|------|----|------|
| R500 | 1-247-747-11 | CARBON | 470  | 5% | 1/2W |
| R501 | 1-249-689-11 | CARBON | 4.7K | 5% | 1/2W |
| R502 | 1-249-657-11 | CARBON | 220  | 5% | 1/2W |
| R503 | 1-247-727-11 | CARBON | 10   | 5% | 1/2W |

(F770ES:Germany/F870ES)

|      |              |        |      |    |      |
|------|--------------|--------|------|----|------|
| R551 | 1-249-689-11 | CARBON | 4.7K | 5% | 1/2W |
| R552 | 1-249-657-11 | CARBON | 220  | 5% | 1/2W |
| R553 | 1-247-727-11 | CARBON | 10   | 5% | 1/2W |

(F770ES:Germany/F870ES)

< RELAY >

|       |              |       |
|-------|--------------|-------|
| RY602 | 1-515-676-11 | RELAY |
| RY603 | 1-515-676-11 | RELAY |

< TEST POINT >

|     |              |                                |
|-----|--------------|--------------------------------|
| TP3 | 1-535-139-00 | BASE POST 14MM (10MM PITCH) 2P |
|-----|--------------|--------------------------------|

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\* 1-637-090-12 TONE BOARD  
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< CAPACITOR >

|      |              |       |        |     |     |
|------|--------------|-------|--------|-----|-----|
| C301 | 1-136-173-00 | FILM  | 0.47uF | 5%  | 50V |
| C302 | 1-107-165-00 | MICA  | 56PF   | 5%  | 50V |
| C303 | 1-123-369-00 | ELECT | 4.7uF  | 20% | 63V |
| C304 | 1-123-369-00 | ELECT | 4.7uF  | 20% | 63V |
| C305 | 1-123-369-00 | ELECT | 4.7uF  | 20% | 63V |

|      |              |       |         |     |     |
|------|--------------|-------|---------|-----|-----|
| C306 | 1-136-155-00 | FILM  | 0.015uF | 5%  | 50V |
| C307 | 1-136-161-00 | FILM  | 0.047uF | 5%  | 50V |
| C308 | 1-136-169-00 | FILM  | 0.22uF  | 5%  | 50V |
| C309 | 1-136-175-00 | FILM  | 0.68uF  | 5%  | 50V |
| C320 | 1-123-369-00 | ELECT | 4.7uF   | 20% | 63V |

|      |              |                         |       |    |     |
|------|--------------|-------------------------|-------|----|-----|
| C321 | 1-102-973-00 | CERAMIC                 | 100PF | 5% | 50V |
|      |              | (F770ES:Germany/F870ES) |       |    |     |

|      |              |       |         |     |     |
|------|--------------|-------|---------|-----|-----|
| C351 | 1-136-173-00 | FILM  | 0.47uF  | 5%  | 50V |
| C352 | 1-107-165-00 | MICA  | 56PF    | 5%  | 50V |
| C355 | 1-123-369-00 | ELECT | 4.7uF   | 20% | 63V |
| C356 | 1-136-155-00 | FILM  | 0.015uF | 5%  | 50V |

|      |              |         |         |     |     |
|------|--------------|---------|---------|-----|-----|
| C357 | 1-136-161-00 | FILM    | 0.047uF | 5%  | 50V |
| C358 | 1-136-169-00 | FILM    | 0.22uF  | 5%  | 50V |
| C359 | 1-136-175-00 | FILM    | 0.68uF  | 5%  | 50V |
| C370 | 1-123-369-00 | ELECT   | 4.7uF   | 20% | 63V |
| C371 | 1-102-973-00 | CERAMIC | 100PF   | 5%  | 50V |

(F770ES:Germany/F870ES)

TONE

INPUT

| Ref.No.                                      | Part No.     | Description                                 | Remark       | Ref.No.       | Part No.       | Description                                  | Remark                                  |
|--|--------------|---|--------------|---------------|----------------|--|---|
| < IC >                                       |              |   |              |               |                |  |   |
| IC301  | 8-759-602-19 | IC M5220L                                   |              | C153          | 1-104-274-11   | POLYSTYRENE 47PF<br>(F770ES:Germany/F870ES)  | 10% 50V                                 |
| < RESISTOR >                                 |              |   |              | < CONNECTOR > |                |  |   |
| R304   | 1-247-713-11 | CARBON                                      | 1K 5% 1/4W   | EH12          | * 1-564-507-11 | PLUG, CONNECTOR 4P                           |   |
| R305   | 1-246-545-00 | CARBON                                      | 1.0M 5% 1/4W | < JACK >      |                |  |   |
| R306   | 1-247-758-11 | CARBON                                      | 3.3K 5% 1/2W | J101          | 1-507-831-41   | JACK, PIN 6P (CD/TUNER/PHONO)                |   |
| R307   | 1-247-713-11 | CARBON                                      | 1K 5% 1/4W   | J102          | 1-507-831-41   | JACK, PIN 6P (AUX/TAPE 3 REC OUT, IN)        |   |
| R308   | 1-247-704-11 | CARBON                                      | 220 5% 1/4W  | J103          | 1-507-831-41   | JACK, PIN 6P (DIRECT IN/ADAPTOR IN, OUT)     |   |
| R310   | 1-259-421-11 | CARBON                                      | 510 5% 1/4W  | J104          | 1-507-920-00   | JACK, PIN 4P (TAPE 2 REC OUT, ON)            |   |
| R311   | 1-247-703-11 | CARBON                                      | 180 5% 1/4W  | J105          | 1-507-920-00   | JACK, PIN 4P (DAT/TAPE 1 REC OUT, ON)        |   |
| R312   | 1-247-718-11 | CARBON                                      | 2.7K 5% 1/4W | < COIL >      |                |  |   |
| R313   | 1-249-551-11 | CARBON                                      | 910 5% 1/4W  | L101          | 1-424-397-11   | COIL, CHOKE 200uH<br>(F770ES:Germany/F870ES) |   |
| R314   | 1-246-545-00 | CARBON                                      | 1.0M 5% 1/4W | L102          | 1-424-397-11   | COIL, CHOKE 200uH<br>(F770ES:Germany/F870ES) |   |
| R315   | 1-246-545-00 | CARBON                                      | 1.0M 5% 1/4W | L151          | 1-424-397-11   | COIL, CHOKE 200uH<br>(F770ES:Germany/F870ES) |   |
| R354   | 1-247-713-11 | CARBON                                      | 1K 5% 1/4W   | L152          | 1-424-397-11   | COIL, CHOKE 200uH<br>(F770ES:Germany/F870ES) |   |
| R355   | 1-246-545-00 | CARBON                                      | 1.0M 5% 1/4W | < RESISTOR >  |                |  |   |
| R356   | 1-247-758-11 | CARBON                                      | 3.3K 5% 1/2W | R101          | 1-246-545-00   | CARBON                                       | 1.0M 5% 1/4W                            |
| R357   | 1-247-713-11 | CARBON                                      | 1K 5% 1/4W   | R102          | 1-246-545-00   | CARBON                                       | 1.0M 5% 1/4W                            |
| R358   | 1-247-704-11 | CARBON                                      | 220 5% 1/4W  | R103          | 1-246-545-00   | CARBON                                       | 1.0M 5% 1/4W                            |
| R360   | 1-259-421-11 | CARBON                                      | 510 5% 1/4W  | R104          | 1-246-545-00   | CARBON                                       | 1.0M 5% 1/4W                            |
| R361   | 1-247-703-11 | CARBON                                      | 180 5% 1/4W  | R105          | 1-246-545-00   | CARBON                                       | 1.0M 5% 1/4W                            |
| R362   | 1-247-718-11 | CARBON                                      | 2.7K 5% 1/4W | R106          | 1-246-545-00   | CARBON                                       | 1.0M 5% 1/4W                            |
| R363   | 1-249-551-11 | CARBON                                      | 910 5% 1/4W  | R107          | 1-247-713-11   | CARBON                                       | 1K 5% 1/4W                              |
| R364   | 1-246-545-00 | CARBON                                      | 1.0M 5% 1/4W | R108          | 1-247-713-11   | CARBON                                       | 1K 5% 1/4W                              |
| R365   | 1-246-545-00 | CARBON                                      | 1.0M 5% 1/4W | R109          | 1-247-713-11   | CARBON                                       | 1K 5% 1/4W                              |
| < VARIABLE RESISTOR >                        |              |   |              | R110          | 1-247-739-11   | CARBON                                       | 100 5% 1/2W<br>(F333ESL/F770ES:AEP, UK) |
| RV301  | 1-241-291-11 | RES, VAR, CARBON 100K/100K (BALANCE)        |              | R110          | 1-249-673-11   | CARBON                                       | 1K 5% 1/2W<br>(F770ES:Germany/F870ES)   |
| RV302  | 1-241-292-11 | RES, VAR, CARBON 10K (TREBLE)               |              | R111          | 1-246-545-00   | CARBON                                       | 1.0M 5% 1/4W                            |
| RV303  | 1-241-293-11 | RES, VAR, CARBON 10K (BASS)                 |              | R112          | 1-259-436-11   | CARBON                                       | 2.2K 5% 1/6W<br>(F770ES:Germany/F870ES) |
| < SWITCH >                                   |              |   |              | R113          | 1-259-436-11   | CARBON                                       | 2.2K 5% 1/6W<br>(F770ES:Germany/F870ES) |
| S302   | 1-572-549-11 | SWITCH, PUSH (2 KEY) (SUB SONIC)            |              | R120          | 1-246-545-00   | CARBON                                       | 1.0M 5% 1/4W                            |
| S303   | 1-572-549-11 | SWITCH, PUSH (2 KEY) (MODE)                 |              | R151          | 1-246-545-00   | CARBON                                       | 1.0M 5% 1/4W                            |
| *****  |              |   |              | R152          | 1-246-545-00   | CARBON                                       | 1.0M 5% 1/4W                            |
| * 1-637-091-12 INPUT BOARD                   |              |   |              | R153          | 1-246-545-00   | CARBON                                       | 1.0M 5% 1/4W                            |
| *****  |              |   |              | R154          | 1-246-545-00   | CARBON                                       | 1.0M 5% 1/4W                            |
| * 1-565-492-11 CONNECTOR, BOARD TO BOARD 16P |              |   |              | R155          | 1-246-545-00   | CARBON                                       | 1.0M 5% 1/4W                            |
| * 4-835-639-00 PLATE, GROUND                 |              |   |              | R156          | 1-246-545-00   | CARBON                                       | 1.0M 5% 1/4W                            |
| < CAPACITOR >                                |              |   |              | R157          | 1-247-713-11   | CARBON                                       | 1K 5% 1/4W                              |
| C101   | 1-162-285-31 | CERAMIC 180PF<br>(F770ES:Germany/F870ES)    | 10% 50V      | R158          | 1-247-713-11   | CARBON                                       | 1K 5% 1/4W                              |
| C103   | 1-104-274-11 | POLYSTYRENE 47PF<br>(F770ES:Germany/F870ES) | 10% 50V      | R159          | 1-247-713-11   | CARBON                                       | 1K 5% 1/4W                              |
| C151   | 1-162-285-31 | CERAMIC 180PF<br>(F770ES:Germany/F870ES)    | 10% 50V      |               |                |  |   |

## INPUT

## LED (P.L)

## PREOUT

## CONTROL

| Ref.No. | Part No.       | Description                                    | Remark |
|---------|----------------|--|--------|
| R160    | 1-247-739-11   | CARBON 100 5% 1/2W<br>(F333ESL/F770ES:AEP, UK) |        |
| R160    | 1-249-673-11   | CARBON 1K 5% 1/2W<br>(F770ES:Germany/F870ES)   |        |
| R161    | 1-246-545-00   | CARBON 1.0M 5% 1/4W                            |        |
| R162    | 1-259-436-11   | CARBON 2.2K 5% 1/6W<br>(F770ES:Germany/F870ES) |        |
| R163    | 1-259-436-11   | CARBON 2.2K 5% 1/6W<br>(F770ES:Germany/F870ES) |        |
| R170    | 1-246-545-00   | CARBON 1.0M 5% 1/4W                            |        |
|         |                | < SWITCH >                                     |        |
| S102    | 1-570-593-11   | SWITCH, SLIDE(REMOTE TYPE)(DIRECT INPUT)       |        |
| S103    | 1-570-076-11   | SWITCH, SLIDE(REMOTE TYPE)<br>(REC OUT SELECT) |        |
| *****   |                |  |        |
|         | * 1-637-092-11 | LED (P.L) BOARD<br>*****                       |        |
|         |                | < DIODE >                                      |        |
| D607    | 8-719-313-40   | DIODE SEL1516W                                 |        |
| *****   |                |  |        |
|         | * 1-639-110-11 | PREOUT BOARD<br>*****                          |        |
|         |                | < CONNECTOR >                                  |        |
| CNJ901  | 1-564-980-11   | PIN, CONNECTOR 4P (CONTROL S)                  |        |
|         |                | < DIODE >                                      |        |
| D950    | 8-719-912-20   | DIODE 1SS120                                   |        |
|         |                | < CONNECTOR >                                  |        |
| EH43    | * 1-564-507-11 | PLUG, CONNECTOR 4P                             |        |
| EH44    | * 1-564-506-11 | PLUG, CONNECTOR 3P                             |        |
|         |                | < JACK >                                       |        |
| J902    | 1-565-319-71   | JACK, PIN 2P (PREOUT)                          |        |
|         |                | < TRANSISTOR >                                 |        |
| Q950    | 8-729-900-80   | TRANSISTOR DTC114ES                            |        |
|         |                | < RESISTOR >                                   |        |
| R953    | 1-249-393-11   | CARBON 10 5% 1/4W                              |        |
| R958    | 1-249-429-11   | CARBON 10K 5% 1/4W                             |        |
| *****   |                |  |        |

| Ref.No. | Part No.       | Description                      | Remark |
|---------|----------------|----------------------------------|--------|
|         | * A-4345-485-A | CONTROL BOARD, COMPLETE<br>***** |        |
|         |                | < CAPACITOR >                    |        |
| C605    | 1-126-062-11   | ELECT 47uF 20% 63V               |        |
| C608    | 1-126-058-11   | ELECT 4.7uF 20% 63V              |        |
| C610    | 1-126-058-11   | ELECT 4.7uF 20% 63V              |        |
| C901    | 1-136-165-00   | FILM 0.1uF 5% 50V                |        |
| C902    | 1-124-556-11   | ELECT 2200uF 20% 16V             |        |
| C903    | 1-161-379-00   | CERAMIC 0.01uF 20% 25V           |        |
| C904    | 1-126-233-11   | ELECT 22uF 20% 50V               |        |
| C905    | 1-124-907-11   | ELECT 10uF 20% 50V               |        |
| C906    | 1-126-233-11   | ELECT 22uF 20% 50V               |        |
| C907    | 1-136-161-00   | FILM 0.047uF 5% 50V              |        |
| C908    | 1-126-233-11   | ELECT 22uF 20% 50V               |        |
| C909    | 1-102-963-00   | CERAMIC 33PF 5% 50V              |        |
| C910    | 1-102-963-00   | CERAMIC 33PF 5% 50V              |        |
| C912    | 1-101-004-00   | CERAMIC 0.01uF 50V               |        |
| C920    | 1-136-165-00   | FILM 0.1uF 5% 50V                |        |
| C921    | 1-124-907-11   | ELECT 10uF 20% 50V               |        |
| C922    | 1-124-907-11   | ELECT 10uF 20% 50V               |        |
| C923    | 1-124-907-11   | ELECT 10uF 20% 50V               |        |
| C935    | 1-161-379-00   | CERAMIC 0.01uF 20% 25V           |        |
| C936    | 1-161-379-00   | CERAMIC 0.01uF 20% 25V           |        |
| C937    | 1-124-604-00   | ELECT 330uF 20% 10V              |        |
| C939    | 1-161-379-00   | CERAMIC 0.01uF 20% 25V           |        |
| C940    | 1-124-477-11   | ELECT 47uF 20% 25V               |        |
| C941    | 1-124-477-11   | ELECT 47uF 20% 25V               |        |
| C942    | 1-124-477-11   | ELECT 47uF 20% 25V               |        |
| C943    | 1-124-477-11   | ELECT 47uF 20% 25V               |        |
| C944    | 1-124-477-11   | ELECT 47uF 20% 25V               |        |
| C945    | 1-124-477-11   | ELECT 47uF 20% 25V               |        |
| C946    | 1-124-477-11   | ELECT 47uF 20% 25V               |        |
| C947    | 1-161-379-00   | CERAMIC 0.01uF 20% 25V           |        |
| C948    | 1-161-379-00   | CERAMIC 0.01uF 20% 25V           |        |
| C949    | 1-161-379-00   | CERAMIC 0.01uF 20% 25V           |        |
| C950    | 1-161-379-00   | CERAMIC 0.01uF 20% 25V           |        |
| C951    | 1-161-379-00   | CERAMIC 0.01uF 20% 25V           |        |
| C952    | 1-161-379-00   | CERAMIC 0.01uF 20% 25V           |        |
| C953    | 1-161-379-00   | CERAMIC 0.01uF 20% 25V           |        |
|         |                | < DIODE >                        |        |
| D604    | 8-719-912-20   | DIODE 1SS120                     |        |
| D605    | 8-719-912-20   | DIODE 1SS120                     |        |
| D606    | 8-719-912-20   | DIODE 1SS120                     |        |
| D901    | 8-719-200-82   | DIODE 11ES2                      |        |
| D902    | 8-719-200-82   | DIODE 11ES2                      |        |
| D903    | 8-719-200-82   | DIODE 11ES2                      |        |
| D904    | 8-719-200-82   | DIODE 11ES2                      |        |
| D905    | 8-719-912-20   | DIODE 1SS120                     |        |
| D913    | 8-719-912-20   | DIODE 1SS120                     |        |



## CONTROL

| Ref. No.       | Part No.       | Description            | Remark | Ref. No.     | Part No.     | Description         | Remark |
|----------------|----------------|------------------------|--------|--------------|--------------|---------------------|--------|
| D914           | 8-719-912-20   | DIODE 1SS120           |        | R609         | 1-249-437-11 | CARBON 47K 5% 1/4W  |        |
| D915           | 8-719-912-20   | DIODE 1SS120           |        | R610         | 1-249-433-11 | CARBON 22K 5% 1/4W  |        |
| D916           | 8-719-912-20   | DIODE 1SS120           |        | R611         | 1-247-812-11 | CARBON 160 5% 1/4W  |        |
| D917           | 8-719-912-20   | DIODE 1SS120           |        | R616         | 1-249-398-11 | CARBON 27 5% 1/4W   |        |
| D918           | 8-719-912-20   | DIODE 1SS120           |        | R633         | 1-249-425-11 | CARBON 4.7K 5% 1/4W |        |
| D919           | 8-719-912-20   | DIODE 1SS120           |        | R650         | 1-247-838-00 | CARBON 2K 5% 1/4W   |        |
| D920           | 8-719-912-20   | DIODE 1SS120           |        | R908         | 1-249-429-11 | CARBON 10K 5% 1/4W  |        |
| D921           | 8-719-912-20   | DIODE 1SS120           |        | R909         | 1-249-429-11 | CARBON 10K 5% 1/4W  |        |
| D922           | 8-719-912-20   | DIODE 1SS120           |        | R910         | 1-247-887-00 | CARBON 220K 5% 1/4W |        |
| D923           | 8-719-912-20   | DIODE 1SS120           |        | R911         | 1-249-441-11 | CARBON 100K 5% 1/4W |        |
| D924           | 8-719-912-20   | DIODE 1SS120           |        | R912         | 1-249-441-11 | CARBON 100K 5% 1/4W |        |
| < CONNECTOR >  |                |                        |        | R913         | 1-247-895-00 | CARBON 470K 5% 1/4W |        |
| EH1            | * 1-564-506-11 | PLUG, CONNECTOR 3P     |        | R914         | 1-249-405-11 | CARBON 100 5% 1/4W  |        |
| EH2            | * 1-564-506-11 | PLUG, CONNECTOR 3P     |        | R915         | 1-249-430-11 | CARBON 12K 5% 1/4W  |        |
| EH3            | * 1-564-506-11 | PLUG, CONNECTOR 3P     |        | R916         | 1-249-405-11 | CARBON 100 5% 1/4W  |        |
| EH4            | * 1-564-507-11 | PLUG, CONNECTOR 4P     |        | R917         | 1-247-903-00 | CARBON 1M 5% 1/4W   |        |
| EH5            | * 1-564-505-11 | PLUG, CONNECTOR 2P     |        | R918         | 1-249-429-11 | CARBON 10K 5% 1/4W  |        |
| EH6            | * 1-564-506-11 | PLUG, CONNECTOR 3P     |        | R919         | 1-249-429-11 | CARBON 10K 5% 1/4W  |        |
| EH7            | * 1-564-506-11 | PLUG, CONNECTOR 3P     |        | R920         | 1-249-425-11 | CARBON 4.7K 5% 1/4W |        |
| EH8            | * 1-564-512-11 | PLUG, CONNECTOR 9P     |        | R921         | 1-249-429-11 | CARBON 10K 5% 1/4W  |        |
| EH9            | * 1-564-512-11 | PLUG, CONNECTOR 9P     |        | R922         | 1-249-425-11 | CARBON 4.7K 5% 1/4W |        |
| EH10           | * 1-564-505-11 | PLUG, CONNECTOR 2P     |        | R923         | 1-249-425-11 | CARBON 4.7K 5% 1/4W |        |
| EH11           | * 1-564-511-11 | PLUG, CONNECTOR 8P     |        | R924         | 1-249-425-11 | CARBON 4.7K 5% 1/4W |        |
| EH46           | * 1-564-506-11 | PLUG, CONNECTOR 3P     |        | R925         | 1-249-425-11 | CARBON 4.7K 5% 1/4W |        |
| < IC >         |                |                        |        | R926         | 1-249-413-11 | CARBON 470 5% 1/4W  |        |
| IC901          | 8-759-635-31   | IC M50253P             |        | R927         | 1-249-429-11 | CARBON 10K 5% 1/4W  |        |
| IC902          | 8-759-239-47   | IC TC74HC123AP         |        | R928         | 1-249-429-11 | CARBON 10K 5% 1/4W  |        |
| IC903          | 8-759-635-88   | IC M50720-255SP        |        | R929         | 1-249-429-11 | CARBON 10K 5% 1/4W  |        |
| IC904          | 8-719-902-56   | IC PC817               |        | R930         | 1-249-429-11 | CARBON 10K 5% 1/4W  |        |
| IC905          | 8-759-604-84   | IC M5F7806L            |        | R931         | 1-249-429-11 | CARBON 10K 5% 1/4W  |        |
| IC906          | 8-759-604-84   | IC M5F7806L            |        | R933         | 1-249-520-11 | CARBON 47 5% 1/4W   |        |
| IC907          | 8-759-962-08   | IC BA6208              |        | R934         | 1-249-504-11 | CARBON 10 5% 1/4W   |        |
| IC908          | 8-759-962-08   | IC BA6208              |        | R936         | 1-249-504-11 | CARBON 10 5% 1/4W   |        |
| < TRANSISTOR > |                |                        |        | R938         | 1-249-429-11 | CARBON 10K 5% 1/4W  |        |
| Q601           | 8-729-201-53   | TRANSISTOR 2SA1015-GR  |        | R940         | 1-249-399-11 | CARBON 33 5% 1/4W   |        |
| Q602           | 8-729-201-53   | TRANSISTOR 2SA1015-GR  |        | R941         | 1-249-441-11 | CARBON 100K 5% 1/4W |        |
| Q603           | 8-729-140-96   | TRANSISTOR 2SD774-34   |        | R942         | 1-249-405-11 | CARBON 100 5% 1/4W  |        |
| Q604           | 8-729-281-54   | TRANSISTOR 2SC1815-BL  |        | R943         | 1-249-429-11 | CARBON 10K 5% 1/4W  |        |
| Q901           | 8-729-900-36   | TRANSISTOR DTC124ES    |        | R944         | 1-249-425-11 | CARBON 4.7K 5% 1/4W |        |
| Q902           | 8-729-119-78   | TRANSISTOR 2SC2785-HFE |        | < RELAY >    |              |                     |        |
| Q903           | 8-729-620-05   | TRANSISTOR 2SC2603-EF  |        | RY601        | 1-515-614-11 | RELAY               |        |
| Q904           | 8-729-900-61   | TRANSISTOR DTA114ES    |        | < VIBRATOR > |              |                     |        |
| Q912           | 8-729-119-77   | TRANSISTOR 2SA1175-FEK |        | X901         | 1-577-260-21 | VIBRATOR, CERAMIC   |        |
| Q913           | 8-729-900-61   | TRANSISTOR DTA114ES    |        | *****        |              |                     |        |
| < RESISTOR >   |                |                        |        |              |              |                     |        |
| R606           | 1-249-429-11   | CARBON 10K 5% 1/4W     |        |              |              |                     |        |
| R608           | 1-249-437-11   | CARBON 47K 5% 1/4W     |        |              |              |                     |        |

SW (F)

EYE

OUTLET

V.S

| Ref. No. | Part No.       | Description   | Remark |
|----------|----------------|---|--------|
|          | * 1-637-094-12 | SW (F) BOARD<br>*****<br>< DIODE >                        |        |
| D506     | 8-719-301-49   | DIODE SEL2810A  |        |
| D507     | 8-719-301-49   | DIODE SEL2810A  |        |
| D925     | 8-719-301-49   | DIODE SEL2810A<br>(F770ES(GOLD)/F870ES(GOLD))             |        |
| D925     | 8-719-303-02   | DIODE SEL2510C-D<br>(F333ESL/F770ES(BLACK)/F870ES(BLACK)) |        |
| D926     | 8-719-301-49   | DIODE SEL2810A<br>(F770ES(GOLD)/F870ES(GOLD))             |        |
| D926     | 8-719-303-02   | DIODE SEL2510C-D<br>(F333ESL/F770ES(BLACK)/F870ES(BLACK)) |        |
| D927     | 8-719-301-49   | DIODE SEL2810A<br>(F770ES(GOLD)/F870ES(GOLD))             |        |
| D927     | 8-719-303-02   | DIODE SEL2510C-D<br>(F333ESL/F770ES(BLACK)/F870ES(BLACK)) |        |
| D928     | 8-719-301-49   | DIODE SEL2810A<br>(F770ES(GOLD)/F870ES(GOLD))             |        |
| D928     | 8-719-303-02   | DIODE SEL2510C-D<br>(F333ESL/F770ES(BLACK)/F870ES(BLACK)) |        |
| D929     | 8-719-301-49   | DIODE SEL2810A<br>(F770ES(GOLD)/F870ES(GOLD))             |        |
| D929     | 8-719-303-02   | DIODE SEL2510C-D<br>(F333ESL/F770ES(BLACK)/F870ES(BLACK)) |        |
| D930     | 8-719-301-49   | DIODE SEL2810A<br>(F770ES(GOLD)/F870ES(GOLD))             |        |
| D930     | 8-719-303-02   | DIODE SEL2510C-D<br>(F333ESL/F770ES(BLACK)/F870ES(BLACK)) |        |
| D931     | 8-719-301-49   | DIODE SEL2810A<br>(F770ES(GOLD)/F870ES(GOLD))             |        |
| D931     | 8-719-303-02   | DIODE SEL2510C-D<br>(F333ESL/F770ES(BLACK)/F870ES(BLACK)) |        |
|          |                | < RESISTOR >  |        |
| R613     | 1-249-799-11   | CARBON 750 5% 1/2W  |        |
| R628     | 1-247-703-11   | CARBON 180 5% 1/4W  |        |
| R629     | 1-247-703-11   | CARBON 180 5% 1/4W  |        |
| R901     | 1-247-887-00   | CARBON 220K 5% 1/4W                                       |        |
| R902     | 1-247-887-00   | CARBON 220K 5% 1/4W                                       |        |
| R903     | 1-247-887-00   | CARBON 220K 5% 1/4W                                       |        |
| R904     | 1-247-887-00   | CARBON 220K 5% 1/4W                                       |        |
| R905     | 1-247-887-00   | CARBON 220K 5% 1/4W                                       |        |
| R906     | 1-247-887-00   | CARBON 220K 5% 1/4W                                       |        |
| R907     | 1-247-887-00   | CARBON 220K 5% 1/4W                                       |        |
|          |                | < SWITCH >  |        |
| S901     | 1-572-198-11   | SWITCH, KEY BOARD (PHONO)                                 |        |
| S902     | 1-572-198-11   | SWITCH, KEY BOARD (TUNER)                                 |        |
| S903     | 1-572-198-11   | SWITCH, KEY BOARD (CD)                                    |        |
| S904     | 1-572-198-11   | SWITCH, KEY BOARD (AUX)                                   |        |
| S905     | 1-572-198-11   | SWITCH, KEY BOARD (TAPE 3)                                |        |

| Ref. No. | Part No.       | Description   | Remark |
|----------|----------------|---|--------|
| S906     | 1-572-198-11   | SWITCH, KEY BOARD (TAPE 2)                                |        |
| S907     | 1-572-198-11   | SWITCH, KEY BOARD (DAT/TAPE 1)                            |        |
|          |                | *****   |        |
|          | * 1-637-095-11 | EYE BOARD<br>*****<br>< CAPACITOR >                       |        |
| C914     | 1-126-022-11   | ELECT 47uF 20% 10V<br>< IC >                              |        |
| IC909    | 8-749-920-59   | IC A10H3020S<br>< RESISTOR >                              |        |
| R932     | 1-249-421-11   | CARBON 2.2K 5% 1/4W<br>*****                              |        |
|          | * 1-640-345-11 | OUTLET BOARD (F770ES/F870ES)<br>*****                     |        |
|          | 1-533-183-11   | HOLDER, FUSE  |        |
|          | * 4-923-814-01 | PLATE, CONNECTION (F770ES/F870ES)<br>< CAPACITOR >        |        |
| C801     | △1-161-741-00  | CERAMIC 0.001uF 10% 400V (F770ES/F870ES)<br>< CONNECTOR > |        |
| SE100    | 1-564-321-00   | PIN, CONNECTOR 2P (F770ES/F870ES)                         |        |
| VH100    | * 1-564-321-00 | PIN, CONNECTOR 2P (F770ES/F870ES)                         |        |
| VH101    | * 1-564-321-21 | PIN, CONNECTOR 2P (F770ES/F870ES)<br>*****                |        |
|          | * 1-637-837-12 | V. S BOARD (E) (F333ESL)<br>*****                         |        |
|          | 1-533-183-11   | HOLDER, FUSE (F333ESL)<br>< CAPACITOR >                   |        |
| C901     | 1-161-741-00   | CERAMIC 0.001uF 10% 400V (E) (F333ESL)<br>< SELECTOR >    |        |
| S802     | △1-572-009-11  | SELECTOR, VOLTAGE (E) (F333ESL)<br>< CONNECTOR >          |        |
| SE2      | 1-564-687-11   | PIN, CONNECTOR 3P (E) (F333ESL)                           |        |
| SE3      | 1-564-687-11   | PIN, CONNECTOR 3P (E) (F333ESL)                           |        |
| SE51     | 1-564-321-00   | PIN, CONNECTOR 2P (E) (F333ESL)                           |        |
| VH50     | * 1-564-321-00 | PIN, CONNECTOR 2P (E) (F333ESL)                           |        |

**Note:** The components identified by mark △ or dotted line with mark △ are critical for safety.  
Replace only with part number specified.

| Ref. No. | Part No. | Description | Remark |
|----------|----------|-------------|--------|
|----------|----------|-------------|--------|

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## ACCESSORIES &amp; PACKING MATERIALS

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|                |                              |                                       |  |
|----------------|------------------------------|---------------------------------------|--|
| 1-465-801-11   | REMOTE COMMANDER (RM-S703)   | (F333ESL/F770ES(BLACK)/F870ES(BLACK)) |  |
| 1-465-801-21   | REMOTE COMMANDER (RM-S703)   |                                       |  |
| 3-753-600-11   | MANUAL, INSTRUCTION          |                                       |  |
| 3-753-600-41   | MANUAL, INSTRUCTION          |                                       |  |
| 3-753-601-11   | MANUAL, INSTRUCTION (GERMAN) | (Germany:F870ES)                      |  |
| 4-847-802-00   | SCREW (AEP, E, Germany)      |                                       |  |
| * 4-931-954-01 | CUSHION                      |                                       |  |
| * 4-945-279-01 | INDIVIDUAL CARTON (F770ES)   |                                       |  |
| * 4-945-280-01 | INDIVIDUAL CARTON (F333ESL)  |                                       |  |
| * 4-945-282-01 | INDIVIDUAL CARTON (F870ES)   |                                       |  |

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## HARDWARE LIST

|     |              |                                |  |
|-----|--------------|--------------------------------|--|
| #1  | 7-682-148-15 | SCREW, TR                      |  |
| #2  | 7-682-546-09 | SCREW, +B 3X5, PAWL            |  |
| #3  | 7-682-547-09 | SCREW +BVTT 3X6 (S)            |  |
| #4  | 7-682-548-09 | SCREW +B 3X8                   |  |
| #5  | 7-682-549-04 | SCREW +B 3X10                  |  |
| #6  | 7-682-668-09 | SCREW +PSW 4X30                |  |
| #7  | 7-683-255-58 | SET SCREW 5X6 HEXAGON SOCKET   |  |
| #8  | 7-684-024-04 | N 4, TYPE 2                    |  |
| #9  | 7-685-153-19 | SCREW +P 3X30 TYPE2 SLIT       |  |
| #10 | 7-685-234-19 | SCREW +KTP 2.6X8 TYPE2NON-SLIT |  |
| #11 | 7-685-646-79 | SCREW +BVTP 3X8 TYPE2 N-S      |  |
| #12 | 7-685-647-79 | SCREW +BVTP 3X10 TYPE2 SLIT    |  |
| #13 | 7-685-650-79 | SCREW +BVTP 3X16 TYPE2 SLIT    |  |
| #14 | 7-688-004-02 | W 4, SMALL                     |  |

